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Cognitive Strategy Training Effects on Reading Comprehension in Learning-Disabled Readers.

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COGNITIVE STRATEGY TRAINING EFFECTS ON READING COMPREHENSION IN LEARNING DISABLED READERS

A Dissertation

Submitted to the Graduate Faculty of the
Louisiana State University and
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in partial fulfillment of the
requirements for the degree of
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in

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by
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Abstract

This study was conducted to investigate the hypothesis that learning disabled children with reading deficits demonstrate a "production deficiency" by failing to spontaneously employ appropriate cognitive strategies in reading situations. Moreover, it was anticipated that providing them with explicit instruction regarding these strategies would improve their comprehension. Thirty learning disabled seventh- and eighth-grade students were randomly assigned to one of three training conditions: (a) summarization, (b) self-questioning, and (c) control. The effectiveness of the training strategies was assessed by having students write an 80-word summary and answer a 10-item multiple choice comprehension test on each of two passages during three times of testing (i.e., pretest, posttest, and delayed posttest). Results indicated that neither instructional condition facilitated learning disabled readers' recall or comprehension of the texts. Possible reasons for the absence of significant results and future research implications are discussed.

Cognitive Strategy Training Effects on Reading Comprehension in Learning Disabled Readers

Among the skills taught in schools, reading is perhaps the most fundamental, but complex. Unfortunately, many students in school do not learn how to read well. Although estimates vary greatly, it is likely that anywhere from 8 to 15% of school aged-children have reading problems (Kaluger & Kolson, 1978). Progress regarding reading instruction has been made in some areas (i.e., phoneme segmentation, symbol-sound association, word identification), but much less is known about instruction designed to improve comprehension of what is read. Preliminary evidence has shown that comprehension skills of poor readers can be improved by using comprehensive instructional packages (Lloyd, Cullinan, Heins, & Epstein, 1980; Palincsar & Brown, 1983), yet, little is known about specific components of effective comprehension instruction (Brown, Palincsar, & Armbruster, 1984; Lloyd, Kosiewiez, & Hallahan, 1982). In this manuscript, attention is focused on the explicit instruction of comprehension-fostering activities with learning disabled readers. A major purpose is to investigate whether or not learning disabled readers' comprehension problems stem from their deficiency in cognitive

strategies, and whether specific intervention strategies can improve their reading comprehension skills.

Cognitive and Metacognitive Processes

With respect to reading, cognitive and metacognitive processes refer to both skills and strategies that are used by the reader (Brown, 1978; Flavell & Wellman, 1977). For example, when reading proceeds smoothly, cognitive processes predominate. By comparison, when we recognize a comprehension problem, we are primarily making use of metacognitive processes. Then, we may select a "fix-up" strategy which is primarily cognitive in nature. Hence, the reading process in good readers, reflects this constant interplay of cognitive and metacognitive processes.

Although conscious control of one's own activities is not essential for all forms of learning, in the domain of intentional learning and problem solving, conscious "executive control" (i.e., selection, monitoring, and modification of cognitive processes and strategies) of the routines available to the person is the essence of intelligent activity (Brown, 1978). An obvious advantage of the use of knowledge and monitoring is that the deliberate use of reading strategies should result in an increase in reading efficiency.

Assumption and Knowledge of Reading

Basically, people read for two main purposes: (a) meaning, and (b) remembering. Reading for meaning is essentially an attempt to comprehend. Theorists view comprehension as an active process of hypothesis testing or schema building (Anderson, 1984; Baker & Brown, 1980). That is, readers make hypotheses about the most plausible interpretation of the text they are reading and test these hypotheses against the available information.

With mature readers, comprehension monitoring is rarely a conscious experience. Because mature readers do not need to devote their constant attention to evaluating their understanding, comprehension proceeds smoothly until some obstacle arises (Flavell, 1981). However, realizing that one has failed to understand is only part of comprehension monitoring; one must also know what to do when comprehension failures occur. Experts agree that such activities are essential for adequate understanding of texts (Baker & Brown, 1980; Brown, 1980; Brown, Campione, & Day, 1981). One simple way to assess what children know is to ask them. In general, younger and poorer readers have little awareness that they must attempt to make sense of the

text; they focus on reading as a decoding process rather than a meaning-getting process (Canney & Winograd, 1979; Myers & Paris, 1978). They seem to lack "sensitivity" (Flavell & Wellman, 1977) to the demands of reading for meaning (Myers & Paris, 1978).

Reading for remembering requires a person to focus on the material itself and to check whether he/she is actually performing the mental processes that will enable him/her to recall the information. The recall of information is often demanded in schools, both verbatim recall in vocabulary tests and gist recall, when the student is required to reconstruct the essential meaning of a text. Developing strategies that aid recall of information is, therefore, a worthwhile activity (Brown, Campione, & Day, 1981).

Problems in Reading

There are two general classes of problems that can impede effective reading: (a) impoverished background knowledge, and (b) inefficient application of rules and strategies (Baker & Brown, 1980; Brown, Campione, & Day, 1981). To overcome the impediments to effective reading caused by a lack of knowledge, one must set about increasing the learners' general store of information. Unfortunately, few schools have the resources to provide

such general enrichment. On the other hand, numerous researchers have demonstrated experimentally that teaching rules and strategies can be beneficial to readers (Andre & Anderson, 1978-79; Brown & Smiley, 1977; Day, 1980; Palincsar & Brown, 1983; Wong & Jones, 1982).

The Relation of Metacognition to Reading

What a student does while actually processing written material may be one of the most important aspects of reading. Given that the learner is aware of his/her own cognitive processes, and he/she is monitoring them sufficiently to detect a problem, what type of remedial activity will he/she introduce to overcome the problem? The strategies will vary depending upon the goal of the activity, the strategies available to the learner, and the efficiency with which they can be applied (Baker & Brown, 1980).

A Plan for Learning

As instructors, our task should be to devise training routines that will help students to develop an understanding of the learning situation. In designing a plan for learning, the four points noted in Brown, Campione, and Day's (1981) tetrahedral model are crucial. These four points are (a) nature of the

materials, (b) nature of the task, (c) learning activities, and (d) characteristics of the learner (Jenkins, 1979).

As psychologists interested in learning, it is important to provide novice learners with information necessary for them to develop effective learning plans of their own. Therefore, the essential aim of training is to make the trainee more aware of the active nature of learning, of the importance of utilizing problem-solving strategies to enhance his/her understanding, and of the need to adjust his/her reading activities to the demands of the task, the nature of the text, and to his/her own characteristics (Armbruster, Echols, & Brown, 1982; Baker & Brown, 1980; Brown, Campione, & Day, 1981; Flavell & Wellman, 1977).

In principle, training can be aimed at all four points of the tetrahedral model. However, the primary concern in this study will be focused on the influence of two distinct cognitive training strategies on the reading comprehension skills of learning disabled students. Consequently, the first two points of the tetrahedral model (i.e., nature of the materials and nature of the task) are briefly reviewed, followed by a detailed review of the remaining two points of the model

(i.e., learning activities and characteristics of the learner).

Nature of the Materials

Although nature of the materials might include components such as type of text (i.e., narrative as opposed to expository) and topic interest, the primary focus of this discussion will be the influence of text structure on comprehension. When reading, the learner should examine the text itself for the logical structure of the material; its form as well as its content. Although meaning does not reside in the text alone, authors are sometimes helpful in cueing meaning through the use of headings, subsections, summaries, and redundancies (Brown, Campione, & Day, 1981). The ability to capitalize on the inherent structure of the text has been found to be an important aid in comprehension (Brown & Smiley, 1977; Danner, 1976; Meyer, Brandt, & Bluth, 1980).

Meyer, Brandt, and Bluth (1980) examined the ability of good and poor ninth-grade comprehenders (N = 102) to utilize an author's organization in order to facilitate recall. The results indicated that most good comprehenders not only used the same schema for

organizing their recall protocols as the author of the passage, but also recalled more information; whereas most low comprehenders tended to use types of schemata different from the author's and recalled significantly less of the passage.

In a similar study, using younger children, Danner (1976) studied the influence of passage organization on children from grades 2, 4, and 6 (N = 72) in a series of recall and judgment tasks. The sentences in the passages were either organized around three topics or arranged randomly. For all subjects, organized passages were recalled better than disorganized ones. Although the majority of children reported that the disorganized passages were more difficult to remember, only older children attributed the difficulty to differences in structure.

In an attempt to train students to use text structure to aid their comprehension and recall of expository texts, Taylor and Beach (1984) assigned seventh-grade students (N=114) to either an experimental or conventional reading instructional group. In the experimental group, students were taught a hierarchical summary procedure (i.e., make a skeletal outline, summarize each subset, generate topic headings and key

ideas). The conventional group was given a directed reading lesson which consisted of having the students read the text and complete a 15-item comprehension test. A control group was asked to read and reread the passages. During the posttest, all students were asked to read a text, write a gist recall, and answer 13 comprehension questions.

The results indicated that in terms of recall and comprehension questions, the experimental and conventional groups recalled more and correctly answered more comprehension questions than the control group, but there was no difference between the two instructional groups. Taylor and Beach (1984) concluded that the summary procedure may be no more effective than answering comprehension questions to enhance recall. Unfortunately, the effects of instruction are limited to one text.

In another study, Owings, Petersen, Bransford, Morris, and Stein (1980) manipulated the logical structure of text to determine whether performance differences between academically successful and unsuccessful fifth graders ($\underline{N}$ = 16) arises because of differences in the degree to which they spontaneously monitor and evaluate their level of comprehension. The

stimulus materials varied in their descriptions of how characters were logically related to their behaviors. In the easy version, subject-verb pairings were appropriate. The difficult version consisted of re-pairing subjects and verbs (e.g., The thirsty boy had taken a nap).

All children remembered the easy versions better, but only the more successful students consistently recognized that the hard version was more difficult and justified their answers. Overall, the results suggest that successful students are aware of differences in the external structure of passages and are able to adjust their study strategies accordingly. The less successful students appear to fail to notice the differences in sensibleness of text and do not seem to evaluate their comprehension spontaneously. However, can less successful students be prompted to monitor their comprehension by an orienting task, thereby indicating that their failure to monitor is the result of a performance deficit rather than a skill deficit?

After devising an orienting task, Brown and Smiley (1978) examined the relation of fifth through twelfth grade students knowledge of textual importance and their knowledge of effective study strategies, with and

without an induced monitoring task. On Day 1, the students were asked tc read and study passages prior to a recall task. On Day 2, the students were given a mild prompt to underline or take notes during the study period. Utilizing the Johnson (1970) procedure, a group of college students previously had divided the passages into idea units (i.e., a subject and its verb or verb phrase). Another group of college students rated these idea units in terms of four levels of importance to the theme of the passage, with four being the level of most importance.

The results indicated that given extra study time, children from seventh grade and above improved their recall of important text elements, but not of less important details. Children below seventh grade did not benefit from extra study time. In terms of studying behavior, older children showed a greated tendency to underline or take notes during the study time, whereas younger children tended to reread the text. In considering the effects of the orienting task, the spontaneous underliners were significantly better at recalling the most important idea units of the stories. However, the nonusers, and spontaneous, and induced underliners scores did not differ on the first three levels of importance. Brown and Smiley (1978) concluded

that younger and less mature students did not concentrate on the important elements because they did not know what was important, and they failed to utilize effective strategies to improve their study skills.

Another skill associated with the nature of the text is identifying the main theme of a text. A series of recent studies has been concerned with children's abilities to extract the main theme from prose passages (Brown & Smiley, 1977, 1978; Danner, 1976; Meyer, 1973; Meyer & McConkie, 1973; Raphael, Myers, Tierre, Fritz, & Freebody, 1981).

Brown and Smiley (1977) asked 8-, 10-, 12-, and 18-year-olds to rate the idea units of prose passages according to four levels of importance, which took into account the structure and theme of the passage as a whole. After students rated one story, they read and recalled another story. Results showed that 18-year-olds reliably discriminated the four levels of importance, but 8-year-olds made no distinction among any of the levels. The 10-year-olds could differentiate only the most important units from the lower three levels, whereas the 12-year-olds distinguished between the two least and the two most important levels. In reference to recall, older subjects recalled more units,

but all subjects tended to recall the most important information most frequently.

Summary. The above studies indicate that as children mature, they develop knowledge about textual importance, effective study strategies, and knowledge concerning the interface of these factors which enables them to learn. Results also suggest that it may be possible to improve the comprehension and retention of young children and slow learners by teaching them the importance of textual organization and training them in effective study strategies. Unfortunately, none of the studies provided specific strategies, nor the conditions for development or training of these strategies. In order to decide what and when to teach, clear demonstrations of the relation between text structure, specific study strategies and recall for subjects of different ages and learning abilities are needed.

Nature of the Task

Effective performance on any task depends on the learner's awareness of the processing and retrieval demands of the task, the purpose of his/her endeavors, and the aim of the learning activity (Armbruster, Echols, & Brown, 1982; Brown, Campione, & Day, 1981).

However, even if students know the purpose for reading, they must also know how to modify their reading behaviors in response to a variety of tasks. This monitoring ability serves as a measure of progress towards a reading goal and as a signal for comprehension failures. Checking comprehension thus provides a link between the reader's purposes, progress, and behavior (Paris & Myers, 1981).

In an attempt to examine differences in comprehension monitoring between good and poor readers, Paris and Myers (1981) compared the frequency of fourth-grade students (N = 32) monitoring of difficult and anomalous information.

Overall, the study concluded that poor readers do not engage in accurate monitoring, do not evaluate anomalous information, and do not demonstrate accurate comprehension and recall of stories when compared with good readers. However, the reasons for poor readers inaccurate comprehension monitoring remain unspecified. It may be that they adopt the goals of decoding and pronouncing words rather than evaluating and regulating comprehension (Paris & Myers, 1981). This would suggest a different purpose for reading.

In an effort to assess whether good and poor

readers read for different purposes, Forrest-Pressley and Waller (1984) had poor, average, and good readers (N = 144) in grades 3 and 6 read two 500-word passages under each of four different instructional conditions: (a) read for fun, (b) read to make up a title, (c) read as quickly as possible to find one specific piece of information, and (d) read to study. After reading each story, each child was given a comprehension test with 14 multiple-choice items.

The results indicated that comprehension scores, as well as the ability to adjust one's reading strategy in response to an assigned purpose, increased with grade and reading ability. The third-grade poor and average readers read in the same manner regardless of the instructional condition. The sixth-grade good readers differentiated between instructional conditions to the greatest extent, showing greater comprehension in the study condition than in all other conditions.

In considering these results, the question arises why younger, poorer readers tend not to adjust their strategies when reading for different purposes? It is possible that they may not know different strategies, or they may not know enough about the strategies and reading situations to be able to choose the most

appropriate strategy for a particular situation, or they may not monitor strategy use and effectiveness. In considering these hypotheses, it is important to appraise what the child actually does know about reading skills.

One technique which has been used to assess children's awareness of the variables that influence reading comprehension is the interview. Myers and Paris (1978) asked 8- and 12-year-olds (N = 40) a series of 18 standardized questions concerning their understanding of person, task, and strategy variables involved in reading. Results indicated that the 8-year-olds perceived reading as an orthographic-verbal translation problem, rather than as a "meaning-getting" or comprehension task. The 12-year-olds were more aware of meaning dimensions and of the skills required to achieve understanding.

In an similar interview study, Canney and Winograd (1979) investigated second, fourth, and eighth graders' (N = 24) conceptions of reading. In the interview, students were asked, "What is reading?" At all grade levels, better comprehenders were more aware of meaning-getting aspects of reading, whereas poorer comprehenders retained a decoding focus.

Another aspect of reading skills in relation to task characteristics is the learner's estimation of his/her degree of learning with respect to the demands of the task. One way to investigate the match between knowledge and demands is in a student's selection of retrieval cues in preparation for recall attempts (Armbruster, Echols, & Brown, 1982; Brown, Smiley & Lawton, 1978; Danner, 1976). Danner (1976) examined the development of retrieval cue selection by presenting children in grades 2, 4, and 6 with short expository passages. The children were asked to select three sentences that would later help them to remember the rest of the passage. The results indicated that not until the sixth grade were students able to select the topic sentence as a retrieval cue device.

In a similar study, Brown, Smiley, and Lawton (1978) examined the ability to students from fifth to twelfth grade and college students to select retrieval cues and to determine the main ideas of prose passages. The students were asked to study the passages until they could recall all the details in their own words. Using the Johnson (1970) procedure, a group of college students had divided the passages into idea units. Another group of college students had rated these idea units in terms of four levels of importance to the theme

of the passages, with level four being the most important. On each study trial, the students were allowed to select a subset of the idea units to keep with them while they attempted recall. On the first trial, the majority of students at all ages selected the most important units to help them recall. On subsequent trials, children below high school age continued to select the most important units, even though they were perfectly able to recall the most important information without aid, but persistently failed to recall additional details. College students, however, modified their selections as a function of trials: on the first trial choosing predominantly important units for retrieval aids, and shifting preference to the third-level units on the second trial, and to the second-level units on the third trial. Although older high school students showed the same basic pattern as the college students, they did not begin to shift to less important idea units until the third trial. Brown, Smiley, and Lawton (1978) concluded that a successful user of a retrieval plan must have information concerning his/her current state of knowledge, knowledge of the gradation of text importance, and strategic knowledge to select retrieval cues from previously missed information.

Summary. A review of the above studies indicates that a reader should be aware that different desired outcomes require different learning activities and he/she must tailor his/her efforts accordingly (Brown, Campione, & Day, 1981). Unfortunately, none of the studies provided any specific strategies that would facilitate a reader's development of different learning activities which would increase his/her knowledge of, and ability to control task variables in order to derive meaning from text.

Learning Activities

The third variable in Brown, Campione, and Day's (1981) tetrahedral model of learning involves those strategies engaged in by learners that enhance their ability to comprehend the information they are learning and improve their ability to recall it. Researchers have focused on two different kinds of strategies: (a) fix-up strategies to resolve comprehension failures, and (b) studying strategies to enhance encoding, storage and retrieval. This manuscript focuses on two studying strategies, specifically summarization and self-questioning.

Summarization. A summary representation of a story

is the natural product of understanding. When asked to recall, subjects have this summary available in memory and use it to structure their reconstruction of the text (Barlett, 1932; Spiro, 1977). If this theory is correct, then the ability to recall a text is dependent upon the ability to summarize (Brown, Day, & Jones, 1983). Adequate recall, if it is to include more than a bare skeleton, demands strategies for concentrating on difficult and important elements; it requires judgment of what to include and what to omit. A true summary should include a reduction in length of the to-be-remembered material and a condensation of the material to obtain the gist of the text (Brown, Day, & Jones, 1983; Day, 1980).

Naturally, comprehension of a message is a prerequisite to summarizing it; therefore, a good summary is evidence that a message has been understood (Day, 1980). Identifying and integrating main ideas are general comprehension skills that are required for effective comprehension. Students' lack of adequate comprehension strategies has resulted in the development of programs to teach these complex cognitive skills (e.g., Day, 1980; Hansen, 1981; Palincsar & Brown, 1983; Robinson, 1970).

In addition to practical concerns, there are theoretical reasons for studying summarization abilities. Many theories of text processing explicitly relate comprehension, summarization, and recall (i.e., Thorndyke, 1977; Kintsch & van Dijk, 1978). These theories attempt to explain why subjects abstract and retain the gist of a passage, omitting details and redundant information.

Kintsch and van Dijk's (1978) model predicts a direct relation between the representation formed during comprehension and summarization processes. They predict that the information to be included in a summary is determined by macrorules (i.e., processes of deletion, generalization, and integration). In analyzing Kintsch and van Dijk's (1978) model, Brown and Day (1983) have identified six basic rules of summarization. The first two rules involve the deletion of unnecessary material. One should obviously delete material that is trivial and material that is redundant. The next two rules involve the substitution of a superordinate term for details (Brown & Day, 1983). For example, if a text contains a list such as giraffe, bear, lion, and monkey, one can substitute the term zoo animals. This rule is equivalent to Kintsch and van Dijk's (1978) generalization rule. Similarily, one can also

substitute a superordinate action for a list of subcomponents of that action (Brown & Day, 1983). For example, Mary went to the store can be substituted for Mary locked the door, she got into her car, she drove to the corner, etc. This is roughly equivalent to Kintsch and van Dijk's (1978) integration rule. The two remaining rules involve producing a summary of a main constituent unit of the text, the paragraph (Brown & Day, 1983). The first rule is to select a topic sentence; the second rule is if there is no topic sentence, invent one (Brown & Day, 1983). These basic rules appear to catch the essence of the methods used by students when they are engaged in summarization (Brown & Day, 1983; Brown, Day, & Jones, 1983; Day, 1980; Linden & Wittrock, 1981). These also seem to be the rules used by more mature subjects when note taking and outlining (Brown, 1981; Brown & Smiley, 1978).

A developmental difference appears to mark the tendency of readers to efficiently use these six basic rules in comprehending text. In examining this developmental difference, Brown and Day (1983) examined the ability of children from grades 5, 7, 10, and college students (N = 67) to use the summarization rules when reading and recalling expository texts. According to their teachers, none of the students displayed any

reading problems.

Two expository texts, with approximately fifth grade readability levels, served as the stimulus materials. The idea units were rated in terms of their structural importance to the text by independent college students utilizing the Johnson (1970) procedure. The texts were constructed specifically to elicit each summarization rule at least three times. The five rules were (a) deletion of trivial information, (b) deletion of redundant information, (c) superordination of lists, (d) selection of a topic sentence, and (e) invention of a topic sentence.

During each session, the students were instructed to read the text three times, and then were asked to write a good summary of the text. The summaries were scored by two independent raters, obtaining an interrater agreement of .96.

An analysis of variance revealed that all age groups were able to efficiently use the two deletion rules. In considering the superordination rule, there were four options open to each subject: (a) delete the unit entirely, (b) repeat it exactly, (c) use a superordinate inefficiently, and (d) use a superordinate efficiently. The analysis indicated that the 5th

graders tended to delete the superordinate units, whereas the 7th graders either repeated the units or used the superordinate rule inefficiently. By contrast, the 10th graders and the college students rarely repeated the unit or used the superordinate rule inefficiently. In addition, differences were observed for the selection and invention rules. These final two rules were rarely used by the either the 5th or the 7th graders. Moreover, only one-third of the 10th graders and one-half of the college students were able to apply these two rules correctly.

In summary, it appears that even fifth graders know how to delete trivial and redundant elements of simple texts. However, older subjects' performance exceeds younger subjects in the use of more complex condensation rules (Brown & Day, 1983). Consequently, a clear developmental pattern evolves, with deletion rules emerging first, followed by superordination and then selection and invention.

Attempting to replicate the developmental pattern of summarization ability found by Brown and Day (1983), Brown, Day, and Jones (1983) utilized 5th-, 7th-, and 11th-grade students, and college students (N = 57), who were performing on grade level in basic academic

subjects. Six folk stories of comparable length and of fifth-grade readability level served as stimulus materials. The stories were divided into idea units by an independent group of college students following the Johnson (1970) procedure.

Each subject was given two of the stories, randomly selected, and instructed to take them home and learn them perfectly. Approximately one week later, the subjects were required to write down all they could remember of the stories. Then one of the stories was selected randomly to be summarized by the subject. The subjects were given one sheet of paper and told to write a free summary of the story (i.e., no word constraints). After they had finished the first story, they were told to write the story again, but using no more than 40 words. In the final phase, the subjects were told to summarize the story using no more than 20 words. All recall and summarization protocols were scored blindly by two independent raters, with an interrater agreement coefficient of .94.

A mixed analysis of variance, with age and importance level of the idea units as factors, was conducted on the recall data. The results indicated no age effects in the recall of idea units. The importance

level factor was reliable, with all subjects recalling only the most important units.

In all of the analyses of the summarization data, the 7th- and 11th-grade students and the college students showed similar patterns. In both the free summary and the 40-word summary conditions, all three groups showed a significant effect of importance level in the selected items. That is, important idea units were included in the summaries, whereas trivial idea units were omitted. Under the constraint of the 20-word summary condition, all students included only the two most important levels of idea units (i.e., 3-4) in their summaries. However, post-hoc tests revealed a significant age difference, with college students' performing better than the 5th, 7th, and 11th graders, who did not differ. That is, the college students were able to include more important idea units in the same number of words.

Results of the fifth graders ratings during the free summary and 40-word summary conditions indicated they included many more of the most important units in their summaries, but were unable to distinguish between the remaining idea units in terms of their importance to the overall theme. When limited to 20 words, the fifth

graders demonstrated a pattern similar to the older subjects. Thus, it appears that only when severely pressed for space do the younger children become sensitive to the fine degrees of importance (Brown, Day, & Jones, 1983; Brown & Smiley, 1977).

The results of Brown et al.'s (1983) study corroborate those of Brown and Day (1983), indicating that a clear developmental trend may exist in the use of summarization strategies. As compared with younger children, college and older high school students are more sensitive to fine gradations of importance in text and are able to condense more idea units into the same number of words. However, a word of caution is expressed concerning the above data. In both studies, the subjects' abilities in the areas of reading and written language were not assessed. It is possible that the younger subjects' summarizing difficulties arose from less well-developed skills in reading and written language, and not from a failure to apply adequate summarization rules. In addition, due to the younger subjects' less well-developed ability in writing, they may not have used the "appropriate words" to cue the scorers of their use of summarization rules. Consequently, the scorers may have had more difficulty in identifying the younger subjects' use of the

summarization rules. Further, in the study conducted by Brown et al. (1983), the lack of an age effect in the recall results could be an artifact of study time. Using anecdotal information provided by the subjects' parents, the 5th graders studied for approximately 1 hour and 40 minutes, whereas the 7th graders studied approximately 49 minutes.

Despite these limitations, taking the summarization model of Kintsch and van Dijk (1978) and the results of Brown and Day's (1983) and Brown et al.'s (1983) studies, a developmental progression of summarization rules appears to emerge. This information enables the older student to use specific text processing operations that prove to be difficult for less mature readers and may enable remediation to be tailored to students' specific weaknesses.

An attempt to provide such student-responsive training was conducted by Day (1980). Day (1980) trained junior college students (N = 72) to apply basic summarization rules and to check to see if they were using them appropriately. She used two groups of students: (a) average students with no reading or writing problems, and (b) remedial students, who were of normal reading ability but were diagnosed as having

writing problems. Within each of these two groups, she employed four instructional conditions: (a) self-management, where students were given encouragement to write a good summary, to capture the main ideas and to dispense with trivia, but they were not told any rules by which to achieve these ends; (b) rules alone, where students were given explicit instruction and modeling of the summarization rules; (c) rules plus self-management, where students were given both general self-management instructions and rules, but were left to integrate the two sets of information by themselves; and (d) integrated condition, where the students were trained in the five summarization rules with additional training in the control and use of the rules.

Day (1980) constructed seven expository texts that contained segments that would elicit summarization strategies. In order to assess the generality of the rules, one naturally occuring text was included in the experiment. All texts were of fifth grade readability level.

At a minimum, every subject wrote six summaries, two during pretest, one on each of the two training days, and two for the immediate posttest. Most subjects also wrote two summaries for the delayed maintenance

posttest, which was conducted 2-3 weeks after training. Subjects received five scores on each of their summaries, one for each of the summarization rules.

The results indicated that on the pretest, the average and poor writers did not differ in their use of the five summarization rules. After training, the two groups did not differ in their application of deletion or superordination rules. However, average writers tended to show greater improvement on the immediate posttest in their use of the more difficult selection and invention rules. Although the poor writers did improve with training in the use of those rules, they only benefitted from the integrated condition. Day (1980) concluded that the explicitness of the training was the primary factor in determining the amount of improvement students made on the selection and invention rules. Regardless of the student's ability level, the best performance was obtained in the integrated condition; the next best was the rules plus self-management; the third best was the rules alone; and the slightest gains were made by the self-management group.

On the delayed posttest, the overall quality of the summaries decreased. However, for the selection and

invention rules, the integrated training resulted in the best maintenance behavior.

In a second training study, Bean and Steenwyk (1984) explored the effectiveness of the rule-governed and intuitive approaches in teaching summarization. Utilizing two treatment groups taught by the direct instruction method, sixth graders were assigned to receive instruction in either a rule-governed approach or an intuitive approach. The rule-governed approach involved training in the six summarization rules identified by Brown and Day (1983). The intuitive approach involved restricting the number of words that the students were allowed to use in summarizing the passage. A control group simply received advice on finding the main idea. Both a paragraph summary writing task and a standardized test of paragraph comprehension were used to measure the efficacy of the three approaches. The results of the analysis of variance revealed that the treatment groups performed significantly better than the control group on both the summary writing task and on the comprehension test. However, there were no significant differences between the rule-governed and the intuitive groups on either of the tasks. It was suggested that two factors may account for these results. First, both procedures are

based upon specific rules and sequential steps. Second, both approaches rely on a direct instructional model of learning (Bean & Steenwyk, 1984).

Summary. The main value of Brown and Day's model is that it allows one to formulate and test empirically specific hypotheses about comprehension processes. However, one of the major shortcomings of Day's (1980) research is its absence of ecological validity. Her failure to utilize primarily naturally occuring texts and to assess the students' comprehension through typical measures (i.e., comprehension questions) limits the generalizability of her findings. Although initial training studies have produced promising results, systematic investigation using the rules must involve more texts, several different text types, and various age ranges and ability levels to substantiate a relation between summarization and comprehension (cf. Day, 1980).

Self-directed questioning. The process of using questions during study may take at least two forms: (a) students answer questions constructed by the teacher or some other source, and (b) students generate their own questions covering the material read. Author- or teacher-generated questions are acknowledged to be an aid in assisting students to master the content of a

selection (Anderson & Biddle, 1975; Raphael & Gavelek, 1984). It is believed that questions serve to focus the students' attention on the important concepts and details in the text, to induce a review of the information, and to enhance the integration of the textual information with that of one's knowledge base (Andre & Anderson, 1978-79; Anderson & Biddle, 1975; Frase & Schwartz, 1975; Wong, 1979a). Thus, it appears that questions can be thought of as a technique to aid comprehension, as well as being a means for assessing comprehension.

Where author- or teacher-generated questions are not available, students can still direct their own attention to the relevant material through self-questioning. Some educators have stressed that students be encouraged to ask their own questions in order to develop as independent readers (Andre & Anderson, 1978-79; Frase & Schwartz, 1975; Wong & Jones, 1982). The research in self-generated questions includes studies of modeling self-instructions during reading (i.e., Meichenbaum & Asarnow, 1979; Palincsar, 1984), instructing students in question-generation relative to their knowledge of story content (i.e., Singer & Donlan, 1982), having students generate questions after locating main ideas (Andre & Anderson,

1978-79; Wong & Jones, 1982), and while reading (Frase, Rothkopf, & Billington, 1975). Self-generated questions are designed to aid the reader's awareness of and control over the reading process. The main assumption is that if a question generated during reading cannot be adequately answered, readers who are using questions will employ self-correcting strategies to facilitate their understanding (Raphael & Gavalek, 1984).

Several studies have shown facilitative effects for self-generated questions. Bommarito and Meichenbaum (cited in Meichenbaum & Asarnow, 1979) designed a self-instructional training program to enhance seventh and eighth graders reading comprehension skills. Students were assigned to one of three groups: (a) a self-instructional training group, (b) a practice placebo group, and (c) an assessment control group. Students in the self-instructional training group were taught to carry out an internal dialogue that directed them to read for the main idea, important details, order of events, and character motives. The placebo control group received exposure to all of the training sessions and materials, but did not receive self-instructional training. At the end of six training days, all subjects were administered the Nelson Reading Test. Results indicated that the scores for the self-instructional

training group were significantly different from the practice placebo and assessment control groups' scores, suggesting that the use of the dialogue facilitated the reading comprehension skills of the students in the self-instructional training group.

Singer and Donlan (1982) taught 11th-grade students (N = 41) a problem-solving schema for generating questions about a story. Each subject was randomly assigned to either an instructional or traditional group. Six stories, with an average readability level of sixth grade, served as stimulus materials. Subjects in the instructional group were taught how to identify five general elements of stories (i.e., goal, characters, obstacles, outcome, theme). With each element, subjects were shown content-general questions and taught how to convert the general questions into story specific ones.

Subjects were given a copy of each story and listened to a tape recording of it. At a given point in each story, the recording was interrupted. The examiner asked the instructional-group students to write three questions which they wanted answered as the story progressed. The traditional-group students were asked story-specific questions (e.g., What will happen next?).

After listening to the rest of the recording, the instructional-group students were asked to write additional questions which had occurred to them during the story, whereas the traditional-group students wrote 50- to 75-word essays in response to questions asked about the story. Finally, all students answered detailed 10-item multiple choice quizzes on each story. A t-test on the quiz scores revealed a significant difference between the two groups and the authors concluded that the questioning technique was effective in enhancing the recall of students who had been trained in story questioning.

Several limitations are evident in this study. First, the use of sixth grade reading materials with 11th grade students is ecologically questionable. Second, the design of the study did not allow one to determine whether the difference between the two groups was due to the use of the problem-solving schema while reading or the use of the schema plus the generation of questions. Finally, there were no analyses conducted on the quantity nor quality of questions that the students had generated and the relation to subsequent recall.

Two studies, conducted by Frase and Schwartz (1975), explored whether student-generated questions aid

learning. In experiment 1, 48 high school students were assigned to 24 tutorial pairs. An additional 16 high school students merely studied the text in order to obtain an estimate of the relative difficulty of the test items. A printed booklet, containing a biographical passage which was divided into three sections, was given to each student. The students were instructed to ask their partners questions on one-third of the text, to answer questions from their partner on one-third of the text, and to study the remaining one-third of the text by themselves. Each subject was then administered a 90-item posttest. All of the questions generated by both subjects were tape-recorded and evaluated by two independent scorers. For each posttest question, a decision was made about whether the question could be answered on the basis of the questions and related answers that a particular subject pair had produced. Posttest questions that were related to questions generated by a subject pair are referred to as targeted items; posttest questions that were not related are referred to as nontargeted items.

The results of the analysis of variance revealed that recall on the targeted items in the answering and questioning conditions was significantly higher than recall on the nontargeted items in all three conditions.

This suggests that engaging in question production facilitates comprehension as compared with just studying. In order to determine whether performance in the study condition had been influenced by question asking and answering, the study-alone performance of the tutorial subjects was compared to the performance of the 16 subjects who only studied the text. The results of the t-test revealed that the two groups differed significantly only on the targeted items.

In an effort to replicate the findings of experiment 1 and to increase recall for nontargeted items, Frase and Schwartz (1975) conducted a second experiment. An additional purpose of this experiment was to control for the type and number of questions constructed. In experiment 1, there was no relation between the difficulty of a test item and whether it was targeted. Thus, questioning may have been devoted to items of information that were easily recalled even without the benefit of questioning. Consequently, higher posttest payoff might be expected from targeting relatively difficult items. In addition, recall for nontargeted items may increase when subjects construct many, as opposed to few, questions. Sixty-four college freshman participated in the study. The materials and test items used in experiment 1 were utilized, but only

the first two sections of the text served as stimulus materials. A 60-item posttest was given in written form.

Four different sets of instructions were written: (a) two relating to whether 5 or 10 questions were to be constructed, and (b) two relating to the inclusion or absence of instructions to construct questions about hard to remember facts. The subjects were randomly assigned to one of the four instructional conditions. Run in groups, the subjects were required to write the questions they constructed and to indicate which line of text contained the answer to each question. Each subject engaged in a counterbalanced order of question construction and study. After completing the task, the subjects wrote short answers to 60 posttest questions.

The results indicated that the type and number of question instructions had significant effects on the number of posttest items targeted. With respect to type of question instructions, subjects targeted 36% of the posttest items when no instructions were given, whereas they targeted 41% of the posttest items when instructions were provided. This difference was considered to be significant, $p < .05$. with respect to the number of questions constructed, the data suggested

that the 10-question condition resulted in somewhat higher learning than the 5-question condition, but comparisons between these groups were not statistically significant. As in experiment 1, the difficulty of targeted and nontargeted items did not differ significantly.

Overall, the results of the two experiments suggest that engaging in question production, whether individually or in a tutorial situation, facilitates comprehension as compared with just studying. On the other hand, learning effects in both experiments were confined to posttest items that were directly related to the questions that the subjects had constructed. The results of both studies indicated that the nontargeted items were recalled at the same level as the studied items, suggesting that questioning activities do not facilitate the comprehension of incidental information. Further, the authors failed to control for the influence of increased exposure to the passage during the questioning conditions as compared to the study condition. In addition, the students were not provided with instructional objectives on which to base the questions. What remains to be demonstrated is that students can be trained to locate sections of text material which contain important main points, to

generate questions about them, and that the process of generating questions will facilitate the learning of the material.

Andre and Anderson (1978-79) and Wong and Jones (1982) designed two studies to assess the relative importance of training students to become good question generators in comparison to students who are simply "told" to use the question procedure. Both studies taught students to determine the main idea and then create a general question relative to it. Andre and Anderson (1978-79) used a population of high school students (N = 81), whereas Wong and Jones (1982) worked with learning disabled (LD, 3 to 4 years below grade level in reading, as measured by the Nelson Reading Skills Test) middle-school students (N = 120). In both studies, all students were assigned to either a trained or no-trained group and were given a self-instructional booklet which directed them to locate sections in the text containing important points, to underline the main idea, and to formulate questions on them. However, students in the trained groups were also taught how to construct good comprehension questions.

After training, Andre and Anderson's (1978-79) subjects were administered two passages and were asked

to write four questions on each passage. After reading the passages, all subjects took a 24-item test. The results of the comprehension scores revealed no significant difference between the two groups. However, an analysis of variance on the self-generated questions revealed that the trained group generated a significantly greater proportion of good comprehension questions than the untrained group.

In the other study after the training session, Wong and Jones' (1982) students in the trained group were given a new passage and were told to apply the self-questioning technique to the entire passage. They were given a prompt card, which contained the steps in the self-questioning technique and the criteria for a good question. After removing the prompt card, the students were given two new passages and were instructed to apply the self-questioning procedure and to record their questions. The entire training procedure was repeated on a second day.

In the testing phase, all subjects received three passages, each accompanied by a comprehension test. In addition, all subjects were asked to provide a written recall of each passage. The analysis on the comprehension question revealed that the trained LD

students correctly answered significantly more questions than the untrained LD students. With respect to recall, no difference between the two groups was noted.

Summary. These studies suggest that a self-generating question procedure facilitates readers' comprehension by (a) encouraging the reader to set a purpose for study, (b) identifying the important segments of the material, (c) generating questions which require adequate comprehension of the text in order to be correctly answered, and (d) forcing the reader to take an active role in the monitoring of his/her comprehension activities (Andre & Anderson, 1978-79; Baker & Brown, 1980; Brown & Day, 1983). Unfortunately, the results of the present studies are limited by the authors failing to control for varying subject characteristics (i.e., IQ, achievement), limited age ranges (i.e., high school students), and an absence of data to assess the generalizability of the self-generating question procedure. What is needed are studies with younger students, subjects with different ability levels (i.e., IQ, achievement), and a wider range of expository materials matched to the reading levels of all groups in order to ascertain the generalizability and the effectiveness of questions as an aid to increase readers' comprehension and retention

of text.

Characteristics of the Learner

A final major facet of the tetrahedral model is the learner's awareness of his/her own characteristics, how these characteristics affect learning, and how reading and studying behaviors should be adjusted accordingly (Armbruster, Echols, & Brown, 1982; Bransford, Stein, Shelton, & Owings, 1980). Effective learners appear to demonstrate metacognitive skills in the strategies they use in reading: (a) they seek to understand the purposes or task demands through self-questions, (b) they attend to the important aspects of the task, (c) they monitor their reading to determine whether they are comprehending sufficiently or if additional, more appropriate strategies are needed, and (d) they evaluate their own comprehension of the material read (Anderson, 1980; Brown, 1980; Brown & Smiley, 1978; Paris & Myers, 1981; Wong, 1982). Less skilled readers have been shown to lack a general awareness of their own cognitive processes and of the demands of a given task (Torgeson, 1977b; Wong, 1980).

Learning disabled students. In learning disabilities research, there has been a tendency to

adopt an ability deficit as the primary cause of learning disabled children's reading problems (Wong, 1982). A typical example of an ability deficit is to conclude that a learning disabled child's poor performance on a memory task indicates memory deficits. Such an explanation has little utility because for remedial purposes, there is a need to look for additional explanations for their poor performance. More specific explanations include (a) short-term memory deficits and (b) less efficient use of strategies, such as comprehension monitoring.

Less skilled readers have been shown to display performance inferior to that of skilled readers on short-term memory tasks (Bauer, 1977; Torgeson, 1977a). Because comprehension processes depend on the ability of short-term memory to hold recently acquired information, such a deficit could impair one's ability to comprehend. Two general explanations have been advanced to account for this performance deficit: (a) poor readers are less prone to employ active memorization strategies, and/or (b) the slow and unstable decoding process of the poor reader disrupts the utilization of comprehension strategies (Cambourne & Rousch, 1982; Perfetti & Lesgold, 1977; Stanovich, 1982; Torgeson, 1977a; Wong, 1982). Golinkoff (1976),

Torgeson (1977b) and Bauer (1977) have shown that poor readers are less likely to employ a variety of cognitive strategies that facilitate memory performance. Further, poor readers appear to be less adept at comprehension monitoring; they approach a text in a more passive manner (Paris & Myers, 1981; Torgeson, 1977b).

Overall, the idea that many of the performance deficiencies of learning disabled children may be accounted for by their failure to employ efficient task strategies has received consistent support (Torgeson, 1977b, 1980; Wong, 1979b). There are, at least, three major factors that are responsible for learning disabled (LD) children's failure to use active organized strategies as consistently as normal children: (a) LD children lack a sufficient knowledge base, (b) LD children have recently attained the basic skills necessary for successful execution of the strategies, but have not had time to learn to apply them in a strategic way to aid learning, and (c) LD children do not understand or fail to actively participate in the learning process (Wong, 1979a).

The mounting evidence pointing to the generalized comprehension deficits in poor readers has led an increasing number of researchers to investigate the

utilization of metacognitive strategies to remediate their comprehension deficits (Linden & Wittrock, 1981; Palincsar, 1984; Palincsar & Brown, 1984; Torgeson, 1977b). Wong (1980) investigated whether learning disabled children would spontaneously utilize metacognitive strategies to aid their comprehension of implied information. Second- and sixth-grade LD children and good readers participated in the study (N = 128). The LD children had been previously classified according to the following criteria: (a) an academic reading deficit of at least one year below grade level, (b) adequate intelligence as measured on the Performance Scale of the WISC-R, and (c) no physical, sensory, or emotional disorders. Because LD children tend to perform more poorly on the Verbal Tests of the WISC-R, the Performance Tests were chosen as a more valid base of comparison between the LD children and their normally achieving peers. No significant differences between the Performance IQs of the LD children and good readers were noted. The Gates-MacGinitie Reading Test was administered to each child in order to assess his/her reading level. The mean reading level of the second grade LD children and good readers was 1.0 grade below grade level and 1.54 grades above grade level, respectively. The mean reading level for the sixth

graders was 1.83 grades below grade level for the LD children and 1.28 grades above grade level for the good readers.

The stimulus materials consisted of two lists of sentences which were generated to allow a plausible consequence of action which could be implicitly or explicitly stated. The explicit sentence list consisted of sentences with the consequences stated explicitly (e.g., Mary dropped the glass of juice and broke it). The implicit sentence list omitted the consequence clause and only implied the outcome (e.g., Mary dropped the glass of juice).

Utilizing a factorial design, the second- and sixth-grade LD and good readers were randomly assigned to either an explicit or implicit sentence condition. Subjects were seen individually and 20 sentences were read to the subjects who then repeated them aloud. Following a 4-minute interpolated activity, a cued recall test was given to each student. During recall, subjects were given cues consisting of an explicitly stated noun (e.g., glass) and the consequence (e.g., and broke it) for each sentence. If the subject correctly recalled two out of three items in the subject-verb-predicate sequence, he/she received one

point. The scoring was conducted by two graduate students, but no interrater agreement was reported.

The results indicated that the sixth-grade children demonstrated better performance than the second graders and the good readers recalled significantly more sentences than the LD readers. Tests of simple main effects indicated that the good readers and the LD children did not differ in the recall of explicit sentences, but the good readers recalled significantly more implicit sentences than the LD readers. The results suggest that the LD children failed to spontaneously infer the implied consequences of the given sentences. Consequently, their recall of the implied sentences was not facilitated by the retrieval cues which were presented. Of course, these cues were the implied consequences of the corresponding sentences. Wong (1980) concluded that the results support Torgeson's (1977b) view that LD children are inactive learners. However, the results do not suggest that the LD child has a specific ability deficit in comprehending and remembering sentences with implied consequences. His/her poor recall of such sentences was interpreted to reflect a "production deficiency" (Flavell, Friedrichs, & Hoyt, 1970). That is, the LD child may possess the cognitive strategies required for successful task

performance, but he/she is unable to utilize them spontaneously and appropriately. Based upon this assumption, Wong (1980) designed a second study which assessed the effects of questions/prompts on LD children's comprehension and retention of implied information. If the LD child's poor recall of sentences with implied consequences reflects a "production deficiency," then the questioning technique should induce him/her to use constructive operations and inferential strategies to enhance his/her comprehension and retention of the information.

Learning disabled children from grades 2 and 6 served as subjects (N = 32). The LD children were previously classified according to the same criteria as those LD children in experiment 1. The mean reading performance on the Gates-MacGinitie Reading Test for the LD children in grades 2 and 6 were 1.1 and 1.78 grades below grade level, respectively. Utilizing the same sentences as in experiment 1, the experimenter read each sentence to the subject, excluding the implied consequence. After the subject had repeated the sentence, the experimenter asked the subject, "What do you think happens next?" After the interpolating activity, the subjects were given a cued recall test, similar to the test in experiment 1. Two graduate

students scored the data, but no interrater agreement was reported.

The LD second and sixth graders in the implicit sentence condition in experiment 1 served as controls, because they had not been given questions. Their data were used with the present data for statistical analysis in a complete factorial design. The results indicated that the use of a question procedure significantly increased the LD readers' comprehension and retention of implied information. The grade by question interaction was not significant, indicating that the procedure was equally effective with both the second and sixth graders. These results indicate that the LD children's poor performance reflected a "production deficiency" (Flavell, Friedrichs, & Hoyt, 1970). That is, LD children do not automatically generate constructive operations and inferential processing strategies for encoding sentences with implied information. However, LD readers can be induced to generate needed processing strategies for successful performance, indicating they they do not lack the cognitive abilities.

Based upon these results, Wong (1980) concluded that the LD child does not appear to make inferences about what he/she reads as actively as good readers, but

he/she can be induced to generate needed processing strategies for successful performance. Unfortunately, the subjects in both studies were not required to read. Therefore, the results appear to be more related to the attention and memory skills of the good and LD readers, and not their reading comprehension abilities. Further, Wong's use of the Performance Scale on the WISC-R as a basis for selecting, comparing, and minimizing intellectual differences between the normal and learning disabled readers is questionable, because of the high correlation between Verbal IQ and academic achievement. Wong also concluded that the findings of these two experiments provided support of Torgeson's (1977b) view of the LD child as an inactive learner. However, a major weakness with this conceptualization is that Torgeson has not specified the source of cognitive inactivity in LD children. Although Torgeson (1977b) concludes that the source of cognitive inactivity lies in the poor metacognitive skills of LD children, this has not been empirically validated. Consequently, by interpreting her data in support of Torgeson's view, Wong's (1980) interpretation is resting on an unproven assumption.

In an effort to assess children's metacognitive awareness of strategies that influence reading, Paris

and Myers (1981) conducted an interview study. Two groups of good and poor fourth-grade readers (N = 28) were formed on the basis of test scores derived from the California Achievement Test (CAT). The percentile mean of the poor and good reading groups on the CAT were 16.1 and 78.3, respectively. Twenty-five reading strategies that could affect memory for stories were generated. The grouping consisted of 10 positive strategies (e.g., underline important parts), 10 negative strategies (e.g., watch TV while you read), and 5 neutral questions reflecting irrelevant information (e.g., does it help you to remember the story if it is typed in blue instead of black ink). A nine-point graphic rating scale indicating the degree to which a strategy could facilitate or hinder memory was described to the children. The subjects were then verbally presented with the 25 strategies, in random order, and asked to rate the usefulness of each strategy in affecting reading.

The analysis of variance revealed that the poor and good readers ratings of the positive and neutral strategies were similar. However, the poor readers ranked the negative strategies significantly higher, suggesting that they were less aware of the detrimental influences on comprehension of negative strategies than

good readers.

Overall, the results of Paris and Myers' (1981) study suggest that poor readers are less aware of the debilitating effects on comprehension of negative strategies. This study provides further evidence to suggest that poor readers' performance on many tasks is attributable to their lack of awareness of appropriate cognitive strategies rather than to structural or capacity limitations.

Summary. The previously cited studies support Torgeson's (1977b) view that LD children and poor readers demonstrate a "production deficiency" by failing to spontaneously employ appropriate task strategies in learning situations. In addition, it seems possible to minimize this "production deficiency" by providing LD children and poor readers with explicit instruction regarding strategies. Unfortunately, the present research failed to assess the durability or generalizability of the use of such strategies to situations and materials that are different from those involved in the original training. Further research is needed to specify how good and poor readers differ in their understanding of metacognitive reading skills, what strategies are most efficient for what types of

tasks, and how training can promote the utilization of cognitive and metacognitive strategies.

Educable mentally retarded students. Another area of research which may provide some relevant data regarding the facilitative effects of cognitive strategies is research with educable mentally retarded children. Initially, theoretical speculation concerning memory deficits in retarded individuals involved unmodifiable, structural limitations (Campione & Brown, 1977; Ellis, 1963; Spitz, 1963). Historically, it was predicted that IQ and retention interacted, with the rate of retention loss being greater for the retarded (Ellis, 1963). However, Belmont and Butterfield (1969) pointed out that no strong evidence supported such an interaction. Further, if the factor(s) responsible for the poor performance of retarded children on memory tasks were structural, training should produce little or no improvement. However, training effects with the retarded are typically large (Brown & Barclay, 1976; Brown & Campione, 1977; Brown, Campione, & Murphy, 1977; Butterfield & Belmont, 1977; Butterfield, Wambold, & Belmont, 1973).

Similar to the learning disabled student, the retarded student tends to be deficient in his/her employment of various types of strategies in learning

tasks (Brown, 1974; Campione & Brown, 1977). The question of whether the retarded student's deficiency is due to structural limitations or simply the failure to employ an appropriate strategy (or alternatively, a mediational/skill deficiency or a production/performance deficiency) can be answered by examining the effects of specific training.

The general picture which emerges is that educable mentally retarded children readily respond to instruction and with explicit training in both an efficient skill and its appropriate use, an improvement in performance is noted (Belmont & Butterfield, 1971; Brown et al., 1977; Brown & Barclay, 1976; Campione & Brown, 1977; Kail, 1984; Kramer, Nagle, & Engle, 1980). Further, not only can retarded individuals learn to use strategies effectively, but they have demonstrated retention of the strategy for a period of 6 months (Brown et al., 1977) to 1 year (Brown, Campione, & Barclay, 1979). Unfortunately, strategy maintenance refers to situations where there is no change in the experimental task used during training and testing. Evidence of generalization, where individuals use a trained strategy on a task that is clearly different from the training task, is scarce among mentally retarded populations (Brown et al., 1977; Campione &

Brown, 1977; Kramer et al., 1980).

Because of the lack of convincing evidence of generalization of trained mnemonic strategies, some researchers have abandoned training efforts directed at specific skills or strategies and have begun studying the effect of more general factors such as people's knowledge of their own memory processes (Brown, 1974; Campione & Brown, 1977). Research has indicated that the memory difficulties of retarded individuals may result from more basic deficiencies than the mere absence of mnemonic strategies (Kramer et al., 1980). Retarded people experience problems with a number of metacognitive skills, including evaluating their recall readiness (Brown & Barclay, 1977), estimating their memory span (Brown et al., 1977), judging their feeling of knowing experience (Brown & Lawton, 1977), and appropriately adjusting study time (Brown & Campione, 1977).

Summary. Overall, a review of the research regarding memory tasks demanding strategic planning from educable mentally retarded students revealed three main facts: (a) many skills, not just strategy deficits, are involved, (b) the deficits can be alleviated by training, and (c) the effectiveness of the training is limited to the specific situation in which it occurs

(Brown, 1974; Brown & Barclay, 1976). Although extended training on a specific task does enhance maintenance (Brown et al., 1976), it does not appear to influence generalization (Campione & Brown, 1977). However, minimal research has been conducted to maximize generalization with educable mentally retarded students. There have been few attempts to explain the nature of the task and the reasons why a strategy may or may not be helpful. Future research should focus upon specific generalization of intervention training (i.e., evaluate task demands; monitor performance level; choose an activity) on mnemonic skill use and maintenance strategies.

Interaction of the Four Variables in a Learning Situation

In order to become effective learners, children must be able to analyze the learning situation for themselves. That is, they must consider the implicit structure of the material, the demands of the various learning tasks, their own available strategies, and their own cognitive characteristics in order to facilitate their learning (Brown, Campione, & Day, 1981). By appreciating the complex interactions inherent in the learning situation, children will become more flexible and efficient learners (Brown, 1980).

The final section of this manuscript describes a series of successful training studies that have considered the interaction of these four variables. Palincsar and Brown (1983) selected the metacognitive strategies of self-directed summarizing, questioning, clarifying and predicting for use in several training studies in order to improve the comprehension skills of seventh graders. The students in all three studies were of low-normal intelligence and low socio-economic status. They demonstrated average decoding skills, but their standardized reading comprehension scores averaged a 3-year delay.

Study 1. In the first study, four 7th-grade students served as subjects in an extensive training experiment. During the baseline assessment, each student was given a 500-word expository passage that he/she read silently. After he/she had finished, he/she attempted to answer 10 comprehension questions. During the training sessions, the students also read and answered questions on novel assessment passages. However, the assessment stage was preceded by an interactive training session on a different passage. There were 6-8 days of initial baseline, 10 days of training, followed by 6 days of maintenance, and then 3 additional days of training. Six months later, the

students were retested for 8 days; 4 days of untreated maintenance, 2 days of a reintroduction of the intervention, and a final 2 days of maintenance.

During the training sessions, the investigator and the student engaged in an interactive learning game that involved taking turns leading a dialogue concerning each segment of the text. The investigator called the student's attention to the title, asked for predictions based upon the title, and discussed how the passage was related to the student's prior knowledge of the topic. After reading the text, the teacher for that segment summarized the content discussed and clarified any difficulties, asked questions that would possibly be asked on a test, and finally made a prediction about future content. All of these activities were embedded in natural dialogue (Palincsar & Brown, 1983).

Throughout the sessions, the students were told that these activities were general strategies that would help them to understand better as they read and they should try to use the strategies when reading silently. It was noted that the investigator modeled the appropriate activities in the beginning sessions. However, by the final session, the students were able to paraphrase and to provide questions with some

sophistication.

The results of the study indicated a significant improvement in the students' level of performance on the daily assessment question-answering score. They averaged 15% correct on the assessment questions during baseline, but averaged 80-90% accuracy after the training. It was further noted that this level was maintained across both maintenance and reintroduction phases. After the 6 month delay, the students averaged 60% correct; but returned to an 80-90% accuracy rate after the intervention was reintroduced. An additional improvement was also observed in the students' abilities to answer comprehension questions on independent reading texts and in the quality of their dialogues, reflecting an increased tendency to concentrate on questions and to summarize the main ideas of the text (Palincsar & Brown, 1983).

Study 2. Study 2 was a replication of Study 1 with four minor changes: (a) the group consisted of 6 students, in 3 groups of 2; (b) a criterion level of 75% correct on 4 out of 5 consecutive days was established; (c) students received graphed knowledge of their results; and (d) tests of transfer were included (Palinscar & Brown, 1983). The tests of transfer were measures of the skills taught during the training

sessions. These tests assessed the students' use of summarizing activities, predicting questions, error detection, and ratings of the important segments of the narratives.

There were four phases of this study. Phase 1 was a variable baseline consisting of 4 days for Group 1, 6 days for Group 2, and 8 days for Group 3. Phase 2 was the implementation of the intervention for approximately 20 days. At the end of the training sessions, phase 3 or the maintenance stage began, which consisted of 5 days of testing. Phase 4 was the long-term follow-up that took place 8 weeks later. All students were appraised of their progress on a daily basis by graphs depicting the percentage correct for the previous day's assessment.

In summarizing the main results of Study 2, all students reached asymptote within 15 days: For 5 out of 6 students, the level was 70-80% correct. In addition, all students maintained their improved levels of performance on both short- and long-term maintenance tests. As in Study 1, an improvement in the quality of the dialogues over time was found. In addition, both main idea questions and paraphrases increased over time. On the transfer tests, the students showed a significant improvement in writing summaries, designing questions to

be asked on a test, and in detecting ambiguous sentences embedded in the passages.

Study 3. Given the success of the first two studies, another replication was attempted. However, in Study 3, a "real" teacher, not an investigator, carried out the instruction and training took place in naturally occurring groups, not in a laboratory setting. For this study, four groups of students were considered: (a) two classroom reading groups with the poorest readers, and (b) two reading groups that met regularly in the resource setting. Group size ranged from 4-7 students. In all other respects, the study was a replication of Study 2.

The teachers for the four groups received three training sessions. These sessions included providing the teachers with a rationale behind the intervention, having the investigator model the teacher's role, and having the teachers practice teaching the procedures to a group of seventh graders who were not taking part in the study.

In summarizing the main results of Study 3, all of the subjects again reached criterion within 15 days. Qualitative dialogue improvements were again noted, with the students' improvement being maintained over both short- and long-term follow-up sessions. The same

pattern of transfer test performance also occurred, with improvements noted in the students' abilities to write summaries, predict questions, and detect errors.

Summary. The Palincsar and Brown (1983) series of studies can be regarded as successful for four main reasons: (a) the effect was large and reliable, (b) the effect was durable for up to an 8-week period, (c) the training resulted in reliable transfer to dissimilar tasks (i.e., summarizing, predicting questions, detecting errors), and (d) the intervention was equally successful whether conducted by teachers in natural group settings or in the laboratory. In reviewing these three studies, it is important to consider possible reasons for their success. First, training was extensive. Second, the activities trained were well-specified and well-established as being problematic for slow readers. Third, the skills themselves could reasonably be expected to be trans-situational (Brown, Palincsar, & Armbruster, 1984). In addition, a large amount of attention was paid to the metacognitive variables. That is, the subjects were informed about the importance and generality of the activities, they were trained in self-regulatory activities, including checking and monitoring of their own comprehension, and the skills themselves were general

comprehension-monitoring activities applicable to a variety of reading and studying tasks (Brown, Palincsar, & Armbruster, 1984).

Unfortunately, listing the positive features of Palincsar and Brown's (1983) studies reveals an obvious problem in interpretation; the studies are multiply confounded. First, could the interactive format of the training procedures be solely responsible for the comprehension improvement of the students? That is, the interactive format permitted extensive modeling of the target activities and forced the students to participate in the dialogue. Consequently, the teacher was provided the opportunity to evaluate each student's use of the strategies and to provide appropriate feedback and assistance. However, would modeling alone, feedback alone, or just explicit instruction be as effective as the combined package? Second, would a single strategy, rather than a package of summarizing, questioning, predicting, and clarifying have been successful? In addition, are the metacognitive variables an essential component of the training? From a practical standpoint, the combined package has proven successful in increasing the reading comprehension skills of seventh-grade students. However, from a theoretical perspective, a component analysis is necessary to determine the

constituents that are primarily responsible for the improvement.

Implications

With the success of the Palincsar and Brown (1983) studies, the current outlook of cognitive-skills training producing worthwhile educational gains is optimistic. There is growing evidence that the most successful cognitive-skills training packages will include three components: (a) skill training involving practice in the use of the task appropriate cognitive skills, (b) self-control training involving direct instruction in how to orchestrate and monitor the effective use of the skills, and (c) awareness training involving information concerning the reasons why such strategy use improves performance and detailed instruction in "when" and "where" strategies should be used (Brown, Palincsar, & Armbruster, 1984; Brown & Smiley, 1978; Day, 1980; Palincsar & Brown, 1983; Tierney & Cunningham, 1980; Wong & Jones, 1982). The necessary research needed now consists of extensions across skills, settings, populations, and continued efforts to assess the durability and generalizability of the training effects. Further research is also needed to evaluate the utility and effectiveness of different strategies and to assess the ecological validity of

these various strategies.

Yet, the question remains -- how does one teach children these strategies? Training studies generally assume one of three forms: (a) blind, (b) informed, and (c) self-management. In the blind training approach, students are induced to use a specific strategy, without an understanding of its importance. For example, in a summarization task, students may be taught to underline topic sentences, but would not be told why or that those sentences should appear in their summaries (Day, 1980). The obvious problem with this approach is that the strategy is neither maintained nor generalized (Brown, 1978).

A solution to this lack of maintenance and transfer would be to inform the subject about the usefulness of the strategy being taught. Referred to as informed training, the student is both taught a specific strategy and is given information regarding the importance of the activity. For example, students may be given feedback regarding their improved performance on a task (Palincsar & Brown, 1983). Although informed training packages have resulted in improved performance and in maintenance, the evidence for generalization is weak (Day, 1980).

Due to this lack of consistent generalization

effects, some investigators suggest training in skills that are applicable to a wide variety of situations (Brown, 1978; Meichenbaum, 1977). These self-management skills (i.e., planning, thinking about a problem, checking one's answer) are helpful in solving many different kinds of problems and easily generalize to novel instances. Although self-management skills have resulted in improved performance on simple tasks, they have not proved to be sufficient on more complex ones (Day, 1980).

There is a fourth training model which blends informed and self-management techniques. Subjects can be taught a specific skill, be informed of its utility, and receive self-management instruction (e.g., Brown, Campione, & Barclay, 1979). Day (1980) demonstrated that teaching specific strategies and general control of the rules resulted in improved performance of ninth graders summarization skills. Andre and Anderson (1978-79) and Wong and Jones (1982) demonstrated improved comprehension of high school students and learning disabled middle-school students after they were trained in the utility and application of self-questioning techniques.

This brief overview indicates that if we wish to improve students' performance and to have them maintain

that improvement, then both specific strategies and general self-monitoring techniques should be taught. As a general model of how training should proceed, the following guidelines are stated: (a) the trained skill must be relevant, (b) there should be explicit instruction concerning when and how to use the strategies, (c) feedback should be given, (d) a variety of passages, matched to the students reading levels, should be used to facilitate transfer to new situations, and (e) self-checking procedures should be used as an integral part of operationalizing the training strategy (Brown, Campione, & Day, 1981; Day, 1980; Pearson, 1984). With respect to strategies, students should know why, when, where, and how to use strategies while reading and studying. With respect to how, the students should be taught specific rules for applying and monitoring the strategies to ensure that the strategies are being used correctly and are resulting in a desired end-product (Armbruster, Echols, & Brown, 1982; Brown, Campione, & Day, 1981; Brown & Day, 1983).

The present study was designed to evaluate the effectiveness of summarization and self-questioning techniques in improving the reading comprehension skills of learning disabled middle school students. Both summarization and self-questioning techniques have been

shown to facilitate the reading comprehension skills of average and poor readers (e.g., Day, 1980; Palincsar & Brown, 1983; Wong & Jones, 1982). However, the question remains as to which strategy is the most effective, durable, and generalizable. Because previous research (Baker & Brown, 1980; Brown, 1980; Brown, Palincsar, & Armbruster, 1984; Palincsar & Brown, 1983; Wong & Jones, 1982), has included a multitude of training components, it is unclear which of these components is the necessary and sufficient one.

This study examined the following hypotheses:

1. It was predicted that during the immediate posttest, students in the two training conditions would write better summaries and respond more accurately to comprehension questions than children in the control group.

2. It was predicted that during the delayed posttest, students in the two training conditions would write better summaries and respond more accurately to comprehension questions than children in the control group.

3. It was predicted that during the immediate posttest, students in the self-questioning condition would write better summaries and respond more accurately to comprehension questions than children in the

summarization group.

4. It was predicted that during the delayed posttest, students in the self-questioning condition would write better summaries and respond more accurately to comprehension questions than children in the summarization group.

5. It was predicted that during the immediate posttest, students who included a higher proportion of top level idea units (level 4) in their summaries would respond more accurately to comprehension questions than students who included a low proportion of top level idea units in their summaries.

6. It was predicted that during the delayed posttest, students who included a higher proportion of top level idea units (level 4) in their summaries would respond more accurately to comprehension questions than students who included a low proportion of top level idea units in their summaries.

Method

Subjects

A total of 30 learning disabled seventh and eighth grade students participated in the study. The group consisted of 21 males and 9 females; with a racial mix of 18 minority and 12 white. However, only 28 students

completed all three phases of the study. Students who did not complete all three phases were dropped from any analyses. Because the preponderance of males among learning disabled readers is well documented (Ross, 1976), the obtained sex distribution was expected. However, because sex differences had not been observed among studies in which summarization and self-questioning training were utilized, the imbalance was not expected to confound the data (Andre & Anderson, 1978-1979; Brown, Day, & Jones, 1983; Frase & Schwartz, 1975; Wong & Jones, 1982). The students ranged in age from 12 years, 2 months, to 14 years, 9 months, with a mean age of 13 years, 6 months. All subjects received resource reading services daily for 60 minutes. The subjects were selected from students attending two schools in the East Baton Rouge Parish School District. The schools were located in a middle-class socioeconomic area.

Definition of learning disabled. The criteria used to define learning disabled were as follows: (a) average to low average intelligence (mean 90, range 80-109) as measured on the Wechsler Intelligence Scale for Children-Revised, (b) scoring at least at the fifth grade level on the Silvaroli Reading Inventory, (c) scoring at least two grade levels below current grade

placement on the reading comprehension subtest of the Woodcock-Johnson Psycho-Educational Battery, (d) no sensory or physical handicaps, (e) no clinical/psychiatric record of emotional disturbance, (f) currently labeled as learning disabled in the area of reading comprehension according to Bulletin 1508, Pupil Appraisal Handbook, and (g) currently receiving daily resource services in the area of reading.

Independent and Dependent Variables

One independent variable was manipulated and four dependent variables were obtained for all subjects at each time of testing (i.e., pretest, immediate-posttest, delayed-posttest). The independent variable (instructional group) consisted of three levels--summarization, self-questioning, and control. The dependent measures were the proportion of high level idea units (level 4) out of the total number of idea units included in each summary and the proportion of text explicit, text implicit, and script implicit comprehension questions answered correctly. Analysis of each type of comprehension question answered correctly, instead of the total amount of comprehension questions answered correctly, was undertaken in order to assess whether training facilitated students' comprehension and recall of information stated explicitly in the text,

information that required integration across sentences and paragraphs in the text, or information based upon students' prior knowledge. The three types of questions were used to assess whether use of strategies might be especially beneficial to text implicit and script implicit comprehension.

Design

A 3 (instructional group) x 3 (time of testing) completely randomized analysis of covariance design was used in this study (Kirk, 1982). The covariate was the Full Scale IQ score for each subject on the WISC-R. The design consisted of one between subject factor (i.e., instructional group--control, self-questioning, summarization), and one within subject factor (i.e., time of testing).

Materials

The passages used during the training and testing sessions were drawn from a variety of fifth grade basal readers: Tell Me How the Sun Rose from Reading 720, Ginn and Company (1976); Fins and Tails from the Basics in Reading, Scott Foresman (1978); Escapes and Folks from the EMC Basic Comprehension Series, the EMC Corporation (1980); Cinnamon Peaks from Keys to Reading, the Economy Company (1975); Rhymes and Reasons from the

MacMillan Series R, MacMillan Publishing Company (1983); Freedom's Ground from the Holt Basic Reading System, Holt, Rinehart, and Winston (1973); and Free Rein, Allyn and Bacon (1978). All passages were expository, ranging from 334 to 467 words, and representing a range of topics including quicksand, the Inca civilization, the grizzly bear, the ice age, and folk medicine. The 18 passages were selected after determining that they were of a beginning fifth grade readability level according to the Fry (1969) formula. Passages from this grade level were selected to control for some of the decoding problems of the subjects. Further, these particular passages were chosen because it seemed that each of the five rules for summarization could be applied with some regularity. For example, each passage contained at least two lists of items (e.g., river, ocean, and swamp) that would permit superordination; they contained a fair amount of unimportant and redundant information; and there were several paragraphs with and several without topic sentences. Copies of the texts appear in Appendix A.

Because all of the passages were naturally occurring texts in basal readers, a method to insure that the texts contained segments that would elicit specific summarization strategies was devised. First, a

group of 90 college students were asked to read three different texts, to underline any topic sentences and to mark paragraphs that lacked them. They also were asked to write a topic sentence for any paragraph that did not have a topic sentence. In a second experiment, another group of 90 college students were asked to write an 80 word summary of three different texts. The marked texts and the college students' summaries were compared for the identification of topic sentences and the invention of topic sentences not explicit in the texts. The inventions were inserted in the texts and a third group of 90 college students were asked to break the texts into pausal units following the Johnson (1970) procedure. A fourth group of 90 college students were asked to rate the importance of the pausal units for three different texts. All topic sentences, both original and inserted ones, were rated as highly important. Further, the unimportant and redundant units were identified for later scoring. These series of pilot studies resembled those used by Day (1980) to insure that the five summarization rules would be applied to these texts and to construct a method for scoring the summaries.

Eighteen texts were available for the four phases of the experiment (pretest, training, immediate- and

delayed-posttest) and different texts were needed for each phase. In order to evaluate summary writing and comprehension performance on the training days, uncontaminated by possible text effects, all subjects received the same four texts, "Earthquake," "Migrant Monarchs," "Folk Medicine," and "From Jesters to Joeys." In both training conditions, the four modeling texts were "Balance of Nature," "The Incas," "Quicksand," and "Wolverine," and the four guided practice texts were "Bells," "The Ice Age," "Stone Age Today," and "Easter Island." Comparison of pretest, immediate posttest, and delayed posttest performance, the data of primary concern, was made possible by designating three text pairs for use in these phases: "Computers in Our World" and "Live it Well;" "Word Travelers" and "No Way Home;" and "Grizzly" and "At the End of a String" were used in each phase. One-third of the subjects received one of the three story pairs at each time of testing.

Each passage was accompanied by a 10-item multiple-choice comprehension test. The comprehension questions were constructed for each passage using the Pearson and Johnson (1978) taxonomy, which defines the question's relation to the text and the strategy to be implemented in answering the question. If the answer to the question was specifically stated in one sentence in

the text, the question was considered to be text-explicit. A text-implicit question had an answer stated in the text but not in any one place in the text, forcing the reader to integrate the information across sentences and/or paragraphs. Finally, a script-implicit question was one for which no answer was found in the text, requiring the reader to answer the question by drawing upon prior knowledge. Each set of comprehension questions was composed of four text-explicit, four text-implicit, and two script-implicit questions. The comprehension tests appear in Appendix B.

Procedure

The four phases of the study were pretest, training, immediate-posttest, and delayed-posttest. All four phases were conducted during regularly scheduled resource class periods that were 60 minutes long. Each subject was seen for seven consecutive reading resource class meetings; twice for a pretest, four times for training, and once for an immediate-posttest. The students also completed a delayed-posttest 4 weeks following the immediate-posttest.

Pretest. The pretest was given on two consecutive days prior to training. The students were seen in their regularly schedules reading resource classes. On each

day, students were given a packet that contained one text and one 80-word summary sheet (see Appendix C).

The experimenter explained that he/she was interested in how people understand what they read and what methods for teaching people how to understand what they read were best. The experimenter stressed that he/she would be covering material normally covered by their resource teachers, so the students should try to do their best.

The students were instructed to read the text and to write an 80-word summary of it. In order to help the students, the experimenter read the definition of a summary. The definition was as follows:

> A summary is a shortened version of a text. It says basically the same thing as the original passage but it says it in fewer words. That is why it is called a summary. It is short. A summary contains the main points of the story. It does not contain your opinions. You may think that the author of a text is crazy and that the text is full of lies. But you don't say so in your summary. A summary is only a short version of the text, nothing more (paraphrased from Day,

1980).

After hearing the definition of a summary, the students were told that while they were writing their summary, they could keep the text in front of them, refer back to the text, write on the text, write a draft, or do anything that would help them to write a good summary. After each student finished writing his/her summary, their text and their summary were removed and they were given a 10-item multiple-choice comprehension test. Once they completed the test, the students were allowed to read quietly at their desks until the dismissal bell rang.

Training. Following the two pretest days, training took place for 4 successive days. The 30 students were divided into three groups of ten members each. These three groups corresponded to three conditions: (a) summarization, (b) self-questioning, and (c) control. In each condition, the students were subdivided into smaller instructional groups. Because of the students' class schedules, the number of students in each group varied from six in the largest group to three in the smallest group. The summarization condition consisted of two groups of 4 students, the self-questioning condition consisted of two groups, with one group having 6 students and one group having 4 students, and the

control condition consisted of three groups, with each group having 3, 3, and 4 students, respectively.

For all groups, training was conducted by more than one instructor. The instructors were carefully trained to insure a standardized procedure. Each of the training conditions were modeled for him/her and he/she practiced the demonstrated procedures. In addition, clear, step-by-step instructions were available for him/her to follow while he/she was conducting the training sessions (see Appendix D for sample instructions).

Overview of the Training Procedure. Although there were procedural differences between the two training conditions, the general format was similar for both of them. On the first day, the instructor began by repeating the definition of a summary given during pretest. He/she then explained that the handout which they had been given listed steps that would help them to write better summaries. He/she explicitly modeled each of the steps contained on the handout using one of the training texts. Due to timing difficulties, none of the students participated in guided practice on the first day. However, on the 3 remaining training days, all four training groups participated in modeling and guided practice procedures.

Summarization condition. On each of the four training days, the instructor began by defining a summary. The definition was the same as that used during pretesting. The instructor explained that the students could learn more from what they read by writing a good summary. He/she explained that there were certain things to do in writing good summaries and these things were listed on the handout they had been given (see Table 1). The instructor stated that although some

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Insert Table 1 about here

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of the suggestions were general steps and some were specific rules, both were important to write a good summary. After putting a copy of the handout on an overhead projector, the instructor read the handout aloud to the students as they followed along. He/she read general steps one and two, followed by the five summarization rules, and then general steps three, four, and five.

The instructor then told the students that he/she was going to show them how to follow the general and specific rules on the handout. After giving each student a text, and a red and a blue pencil, he/she instruced the students to read the text. Once the

students were finished reading, the instructor demonstrated the first two general steps. First, he/she asked the students to think of a statement to describe what the story was about, he/she stated the main theme, and asked if theirs' were similar. He/she then asked the students to come up with three main points. After thinking about it, the instructor generated three main points of his/her own. Then the instructor applied the five rules of summarization to each of two paragraphs in the text. He/She asked the students to mark their texts, just as he/she went through each rule and marked the text on the overhead projector. Prior to instruction, the experimenter chose two paragraphs which allowed application of the five summarization rules. The instructor (a) pointed out two paragraphs which contained lists, he/she circled them and suggested the appropriate superordinate for each list, (b) he/she pointed out and underlined the topic sentence in two paragraphs, (c) he/she wrote topic sentences for two paragraphs which lacked them, (d) in two paragraphs, he/she crossed out redundant information with a red pencil, and (e) in two paragraphs, he/she crossed out unimportant information with a blue pencil. Although the five summarization rules were not applied to all paragraphs in a text, the instructor told the students

that when writing a summary, the five summarization rules should be applied to each paragraph in a text. Then the instructor demonstrated the last three general steps by checking his/her work and making sure that the five summarization rules had been applied to two paragraphs (see Appendix D for an example of the modeling script for one passage).

On the last 3 training days, a second text was given to the students. They were asked to try to follow the steps on the handout and apply the rules to all the paragraphs. However, the instructor went through the handout with the students, step-by-step, allowing them a specified length of time to complete each step. He/she told them to read the story, make a statement about the theme, pick out three main points and say the ideas to themselves (5 minutes). The instructor then went through the five summarization rules. He/she told the students: (a) to find and to circle all lists and to write a one-word term that described each list (3 minutes); (b) to find and underline the topic sentences and to make up topic sentences for paragraphs without them (5 minutes); (c) to cross out repeated information with their red pencil (3 minutes), and; (d) to cross out unimportant information with their blue pencil (3 minutes). Using an overhead projector, the instructor

modeled the correct answers for the students by marking the answers on the same text they just marked. Although the students did not write a summary for either text, they were told that after applying the steps and rules to the text, they could use the information, that had not been crossed out, to write a summary (see Appendix E for an example of the guided practice script for one passage).

Finally, the students were given a third text and were asked to write an 80 word summary of it. Nothing was stated about the handout, although it was available to them. As each student finished his/her summary, the instructor collected the three texts, the handout, and his/her summary and the student was given a 10-item multiple-choice comprehension test.

Self-questioning condition. On each of the four training days, the instructor began by repeating the definition of a summary given during pretesting and by explaining that the students could learn more from what they read by writing a good summary. He/she explained that there were certain things to do in writing good summaries and these things were listed on the handout they had been given (see Table 2). After putting a copy of the handout on an overhead projector, the instructor

read the handout aloud to the students as they followed along.

Insert Table 2 about here

The instructor told the students that he/she was going to show them how to use the five steps on the handout in order to help them to understand the text and to write a good summary. After giving each student a text, he/she instructed the students to read the text. Once the students were finished reading, the instructor told them the purpose of the self-questioning technique, and the steps in the technique were modeled for them. For the first step, the instructor asked the students to answer the question "What am I studying this passage for?" He/she stated that they were studying the passage so they could write a summary and answer some questions about the story. In order to demonstrate the second step, the instructor taught the students how to identify the main idea in a paragraph, utilizing Aull's (1978) three-rule approach. These three rules are: (a) the main idea is the most general statement in the paragraph, (b) most of the other sentences in the paragraph refer to it, and (c) most of the other sentences should elaborate on this statement. After

demonstrating the three rules and finding the main idea in the paragraph, the instructor asked the students to underline the main idea on their texts, just as he/she underlined the main idea on the text on the overhead projector.

The instructor demonstrated the third step by covering up the sentence or part of the paragraph that stated the main idea, reading the remaining sentences in the paragraph, and asking the students "Do the other sentences make any sense now that we have covered up the main idea sentences?" This step served as a self-check to the students to insure that they had correctly identified the correct sentence or sentences as the main idea. For the fourth and fifth step, the instructor changed the main idea into a question, wrote the question in the margin next to its corresponding paragraph, and answered the question in a full sentence. (See Appendix F for an example of the modeling script for one passage). Although the five steps were not applied to all paragraphs in the text, the instructor told the students that when they wrote a summary, the five steps should be applied to every paragraph.

On the second through fourth days of training, the students were given a new text after the modeling phase.

They were asked to try to follow the steps on the handout for all of the paragraphs. However, the instructor went through the handout with the students, step-by step, allowing them a specified length of time to complete the entire procedure. He/she asked them "What are they studying the passage for" and to answer the question to themselves (1 minute). He/she then went through the remaining four steps. He/she told the students that for each paragraph, they should: (a) find and underline the main idea in each paragraph and check to insure that they chose the correct main idea in each paragraph by covering up the underlined sentence(s) and asking themselves "Do these sentences make sense now that I have covered up the main idea sentence(s); (b) think and write a question about the main idea, and; (c) learn the answers to their questions (19 minutes). Using an overhead projector, the instructor modeled the correct answers for the students by marking the answers on the same text they just marked. Although the students did not write a summary for either text, they were told that after applying these steps to the text, they could change their questions and answers into sentences and use these sentences to write a summary. (see Appendix G for an example of the guided practice script for the Stone Age passage).

Finally, the students were given a third text and were asked to write about an 80 word summary of it. Nothing was said about the handout, although it was available to them. As each student finished his/her summary, the instructor collected all three texts, the handout, and his/her summary and the student was given a 10-item multiple-choice comprehension test.

Control condition. As in the two training conditions, the instructor began by defining a summary. This definition was the same as that which was used during the pretest. After reading the definition, the instructor gave each student a packet which contained a text and a summary sheet. The students were asked to read each text and then to write about an 80 word summary of the text. The instructor told the students that they could keep the text in front of them, refer back to the text at any time, write on the text, or write a draft. In short, the students were allowed to do anything that would help them to write a good summary.

After each student finished his/her summary, the instructor collected his/her text and summary and he/she gave the student a 10-item multiple-choice comprehension test. Once the student finished the test, the instructor collected the test and the student was

allowed to read at his/her desk.

Immediate posttest. After the four days of training, the immediate posttest was given. The students were seen in their reading resource classes. Each student was given two packets, one marked "A" and one marked "B." Each packet contained a text and an 80-word summary sheet.

Without mentioning the training, the instructor explained that he/she was interested in how people understand what they read and what methods are best to teach people how to understand what they read. The instructor asked the students to read the text marked "A" and to write an 80 word summary of it. The students were told that they may keep the text in front of them, refer back to it as often as they like, write on it, make notes, or even write a draft. The students were encouraged to do anything that would help them to write a good summary. The students also were told that once they finished writing the summary, the instructor would collect his/her text and summary, and give him/her a comprehension text. Once the student finished the comprehension test, and the instructor had collected it, the student was instructed to repeat the same procedures for packet "B."

Delayed posttest. The delayed posttest was

conducted four weeks after the immediate posttest. Again, the students were seen in their reading resource classes. Each student was given two packets, marked "A" and "B." Each packet will contained a text and an 80-word summary sheet.

Without mentioning the training, the instructor explained that he/she was interested in how people understand what they read and what methods are best to teach people how to understand what they read. The instructor asked the students to read the text marked "A" and to write an 80-word summary of it. The students were told that they could keep the text in front of them, refer back to it as often as they like, write on it, make notes, or even write a rough draft. The students were encouraged to do anything that would help them to write a good summary. The students also were told that once they finished writing the summary, the instructor would collect his/her text and summary, and give him/her a comprehension test. Once the student finished the comprehension test, and the instructor had collected it, the student was instructed to repeat the same procedures for packet "B."

Scoring. Each summary was scored by the experimenter. Once all of the data was collected, each summary was given a numerical code. The experimenter

read each summary and gave subjects credit for each idea unit from the text that they expressed in their summaries (a gist scoring criterion was used). Thirteen percent of the summaries at each time of testing were evaluated by a second scorer. The inter-rater agreement between the two scorers was 95%.

Results

Two sets of analyses were undertaken with the data. First, a multivariate repeated measures analysis of covariance (MANCOVA) was conducted in order to examine differences between the instructional condition (i.e., control, self-questioning, and summarization) and time of testing (i.e., pre, immediate, and delayed). Second, correlations between the summary scores and the multiple choice comprehension questions were calculated.

MANCOVA

Data was analyzed using a 3 (instructional groups) x 3 (time of testing) mixed MANCOVA. There was one between subject factor (i.e., instructional group--control, self-questioning, and summarization), and one within subject factor (i.e., time of testing). The four dependent measures analyzed were the arcsine transformed proportions of text explicit, text implicit, and script implicit comprehension questions answered

correctly on the multiple choice comprehension tests and the arcsine transformed proportion of high level idea units (i.e., level 4) included in each summary. The arcsine transformations were used to obtain more normally distributed scores (Kirk, 1982).

Results from the MANCOVA indicated no significant main effects for instructional group, multivariate F (8, 42) = .61, $p < .77$, or for time, multivariate F (8, 94) = 1.49, $p < .18$. In addition, the Instructional Group x Time interaction effect was not significant, multivariate F (16, 144) = 1.05, $p < .41$. Because all of the multivariate tests were not significant, no univariate follow-up tests were conducted. Mean arcsine transformed proportions for the four dependent variables are presented in Table 3.

Insert Tables 3 and 4 about here

Correlational Analyses

In order to assess the relation between summarization scores (i.e., proportion of high level idea units included in the summaries) and comprehension performance on the multiple choice tests, Pearson correlation coefficients were computed between the two

measures for each instructional group at each time of testing. In order to protect against a Type I error, the alpha level for each correlation was set at .0055 (i.e., .05/9).

For the control instructional group, none of the three correlations were significant at each of the three times of testing: $r = -.43$, $p < .21$; $r = -.11$, $p < .77$; and $r = .70$, $p < .03$, respectively. For the self-questioning instructional group, none of the three correlations were significant at each of the three times of testing: $r = -.05$, $p < .88$; $r = .79$, $p < .01$; and $r = .23$, $p < .52$, respectively. The summarization group correlations were also not signficant: $r = -.07$, $p < .87$; $r = .39$, $p < .34$; and $r = .21$, $p < .62$, respectively. Although several of the correlations look quite high, scatter plots indicated that outliers may have contributed to the high correlations. Hence, these correlations appear to be spurious and merit no further interpretation.

Discussion

Recently, the nature of intervention research with learning disabled (LD) students has changed markedly. The process training approach (i.e., memory deficits) has been replaced by a strategy-training approach which

emanates from theoretical frameworks of cognitive psychology, metacognitive theory (Baker & Brown, 1984), and cognitive behavior modification (Meichenbaum, 1977). The emphasis of these approaches has focused upon the search for learning mechanisms that are independent of context, content, species, and age, and the development of instructional approaches to teach academically weak students specific strategies needed to deal with varied tasks (Brown & Campione, 1986).

The increase in cognitive and metacognitive interventions in LD research appears to benefit LD students because such research shifts the focus from ability (structural) deficits which may well defy remediation to increasing their cognitive and metacogntive skills. On the basis of a decade of systematic research, it appears that training LD students and poor readers in cognitive and metacognitive strategies facilitates their performance on reading comprehension tasks (Brown & Palincsar, 1987, in press; Palincsar & Brown, 1983; Wong & Jones, 1983; Wong, Wong, Perry, & Sawatsky, 1986). However, these previous training approaches have incorporated numerous and elaborate cognitive and metacognitive strategies to aid LD and poor readers' comprehension abilities (Brown &

Palincsar, 1987, in press; Palincsar & Brown, 1983; Wong et al., 1986). The problem with such extensive training procedures is that one cannot specify which aspects of the training are responsible for the beneficial effects.

The purpose of the present study was to assess the effectiveness of two specific comprehension-fostering activities (i.e., summarization and self-questioning) on improving LD students' recall and comprehension of texts. Unfortunately, the results indicated that given either summarization or self-questioning strategy training, LD adolescents failed to improve their performance on writing summaries or on multiple-choice comprehension tests. Overall, there appear to be at least five reasons for the failure to obtain significant results: (a) training time was too short; (b) both training approaches failed to teach the concept of main idea, (c) both training approaches failed to shift the LD reader from a passive learning approach to an active involvement with the material, (d) the strategies were not compatible with the LD students' prerequisite skills, and (e) the training techniques were not monitored to ensure treatment integrity. In the present study, these five reasons are not considered isolated incidents, but the interaction of these five variables possibly caused no significant effects for instructional

group, time, or the interaction of these two factors.

Present research, which has recently become available, was quite beneficial in explaining the potential shortcomings of this study (e.g., Brown & Palincsar, 1987, in press; Palincsar, personal communication, April 4, 1987; Wong et al., 1986). Unfortunately, this evidence was not available prior to the design and execution of this study.

In reviewing previous training studies, the most successful ones have incorporated an interactive instructional approach with extensive training, time and simple concrete strategies (Brown & Palincsar, 1987, in press; Palincsar & Brown, 1983; Wong & Jones, 1982; Wong et al., 1986). The reciprocal teaching procedure of reading comprehension instruction is one example of this type of training approach (Brown & Palincsar, 1987, in press; Palincsar & Brown, 1983). The reciprocal teaching model features a cooperative learning environment that uses guided practice in applying some concrete strategies to the task of text comprehension.

In the reciprocal teaching approach, a teacher and a group of students take turns leading a discussion concerning a segment of the text. The dialogues include spontaneous discussion and argument, and incorporate

four main comprehension-fostering activities: (a) questioning, (b) clarifying, (c) summarizing, and (d) predicting. Students are given a great deal of initial structure, intensive coaching in how to identify the most important points of a passage and are provided feedback so that they gradually acquire the cognitive skills. Using reciprocal teaching as the daily reading instruction for a period of between 3-6 weeks, Brown and Palincsar (in press), attempted to improve the reading comprehension skills of academically delayed sudents. Results indicated a wide range of improvements in the comprehension test scores of grade school and junior high school poor readers (Brown & Palincsar, 1987, in press). The students not only improved in the application of the strategies, but they progressed from passive observers to active learners. Outside the group, maintenance and generalization effects were large and reliable (Palincscar, personal communication, April 4, 1987). In contrast, comparable students who received direct instruction and teacher modeling of the comprehension strategies showed limited to no improvement in their performance on multiple-choice comprehension tests (Palincsar, personal communication, April 4, 1987). Further, the students' minimal improvement was not sustained over time or context.

Therefore, simply providing instruction in the missing strategies is far less effective than using guided practice techniques where the teacher gradually shapes and structures the students' application of the strategies and the students are given practice in controlling and overseeing the use of these strategies (Brown, 1981; Campione & Brown, 1986).

There is a striking parallel between the findings of this study and Brown and Palincsar's (in press). It appears that instruction aimed at the application of strategic procedures is less effective than instruction that creates situations where the students progress from passive observers to active learners. In the present study, students were informed about the use of the strategy, they were told when and why it would work, the steps were modeled for them, and they were given independent guided practice instructions to use the strategies. However, the guided practice sessions were not interactive, they did not supply direct feedback, nor did they shape the students application of the strategies. Consequently, the LD students remained relatively inactive learners.

From a theoretical standpoint, the reciprocal teaching model procedures are compatible with a great

deal of Vygotsky's (1978) work, that learning involves the internalization of activities originally witnessed and practiced in cooperative social settings. That is, children learn by participating in group activities where they are exposed to a variety of models who differ in experience. The more expert members of the group model mature behavior and gradually induce novices to take on more responsibility for using these same techniques. The reciprocal teaching procedures, with the social support for individual effort and its gradual transfer of responsibility from the teacher to the students, is a classic example of a cooperative learning group. Understanding is more likely to occur when a student is required to explain, elaborate or defend his/her position to others (Brown, 1980; Campione & Brown, 1986; Brown & Palincsar, 1987, in press).

In the context of a cooperative social teaching approach, Wong et al. (1986) trained five 7th grade LD students using a self-questioning summarization strategy to improve their reading comprehension abilities. However, prior to teaching the strategy, each student was first taught to identify the main idea and to summarize simple and complex paragraphs. After mastery was obtained (i.e., the student could summarize three complex paragraphs, where the summarization contained

the main idea sentences and the important details), he/she was then instructed on the self-questioning strategy. The instructional session began with a teacher using direct instruction, and progressed to having the student model the strategy, with coaching and corrective feedback being provided by the teacher. In addition, the students were provided with a prompt card that contained the steps of the strategy, the teacher read and explained the rationale of the self-questioning summarization strategy, and the teacher pointed out how the summarization statements for each paragraph could be connected to the subheadings included in the text. The results indicated facilitative effects of the strategy on including the most important idea units in their summaries and on short answer (i.e., recall) comprehension questions. Further, the facilitative effects were maintained for one month after training and the subjects demonstrated tranfer to similar school related tasks.

With respect to the present study, Wong et al.'s (1986) study addresses the fact that upper elementary LD children (i.e., 7th graders) can be taught summarization skills. Therefore, the task demands of the summarization group appeared to be within the problem solving capacity of the subjects. However, Wong et al. (1986) trained

the students approximately 2 to 3 months on the application of Brown and Day's (1983) selection and invention summarization rules. The students were seen individually for three sessions a week, with each session lasting 30 minutes. In addition, the texts were structured so that the subheadings were linked directly with invention and selection rules. Consequently, it appears that the present study was not only insufficient in training time, but the task demands involved a set of skills that were not within the problem solving capacity of the subjects (i.e., the students were not trained to find the main idea prior to instruction), the text structure did not directly link with the invention and selection rules of the summarization strategy, and the training procedures did not utilize an interactive social approach. Therefore, the summarization training, as implemented in this study, provided neither adequate prior instruction nor adequate training instruction.

With respect to the self-questioning strategy, Wong and Jones (1982) taught 120 LD eighth and ninth graders a 5-step self questioning strategy to improve their understanding of important textual units. All subjects were given three days training on the concept of a main idea before self-questioning training was conducted. Wong (1979) reported that because LD students tend to

lack mastery of the main idea concept, their deficiency must be remediated before strategy training will prove beneficial. The self-questioning training lasted only two days, with subjects being told the purpose of the self-questioning technique, the steps were modeled for them, the subjects were given a prompt card and told to apply the self-questioning technique to the entire passage, using the prompts, and corrective feedback was given to each student. The whole session took about 2 hours per day. Although the self-questioning group in the present study used the same training steps, the students were not previously trained in the concept of the main idea, nor was corrective feedback given to the students, nor was training conducted for 2 hours a day. The results of Wong and Jones' (1982) self-questioning training procedures indicated significant improvement in the LD students performance on comprehension tests.

More recently, in a summarization self-questioning training study by Wong et al. (1986) the LD students were trained to use a self-questioning procedure, similar to the one by Wong and Jones (1982). However, training was conducted for an additional 2 months, after the subjects had been trained to identify the main idea and to use summarization rules. As hypothesized, the students' summaries and recall of the texts improved.

The facilitative effects of the self-questioning training procedures in Wong and Jones (1982) and Wong et al. (1986) studies can be explained in terms of providing the LD reader with strategies to identify the main ideas of the material and requiring the LD readers to generate questions that focused on the main idea. Moreover, the training approach forced the reader to take an active role in his/her monitoring of comprehension activities (Baker & Brown, 1980; Brown & Day, 1982). As a result, comprehension for the material was greatly improved. As in the summarization instructional group, the self-questioning instructional group in the present study was not only insufficient in training time, but the training procedures failed to teach requisite skills in identifying the main idea thus involving task demands that necessitated a set of skills that were not within the problem solving capacity of the subjects. Moreover, the procedures failed to incorporate a social learning approach to induce the LD students to become active learners.

In addition to the failure of the summarization and self-questioning training approaches to facilitate recall and comprehension by LD readers, the absence of significant correlations between the number of high level idea units included in the students' summaries and

their scores on the multiple-choice comprehension tests raises two important questions. First, are summaries a valid and useful estimate of childrens' reading comprehension? Second, is there a relation between comprehension questions and the number of high level idea units (i.e., level 4) included in childrens' summaries?

With respect to the first question, Head, Readance, and Buss (1987) examined the validity of summary writing as a measure of reading comprehension. They also investigated additional factors which may affect summary performance. Forty-nine seventh-grade students were asked to complete an interest inventory, a prior knowledge test, and an essay to assess writing ability. After a one week buffer, summarization instruction began for 2 consecutive days. Posttesting was conducted on the day following instruction and consisted of reading a passage, writing a summary, and answering 10-multiple choice comprehension questions.

The results indicated that prior knowledge and topic interest were both shown to be related to summary performance. In addition, writing ability was significantly correlated with the proportion of important idea units included in the summaries.

Consequently, if prior knowledge and topic interest are low, and their writing ability is poorly developed, summary production may be adversely affected. Although we may conclude that the students' did not comprehend the passage, it is possible that the students' were unable to deal with the task demands. Head et al. (1987) concluded that written summaries do have a place in comprehension assessment. However, one shold give consideration to factors that may affect summary writing.

In reference to the second question, Head and Buss (in press) assessed the relation between summary scores and postreading question scores, hypothesizing that summaries and multiple-choice questions were measuring similar kinds of information. Fifty-three seventh-grade students were asked to read a passage, complete two recall tasks (i.e., free recall and summary), and then on the following day, were asked to reread the target passage and answer postreading multiple-choice comprehension questions. The correlational results between the summary scores (i.e., number of important idea units) and the multiple-choice postreading questions were significant because the multiple-choice questions were constructed to measure high level idea units (i.e., level 4). In the present study, only 42%

of the multiple-choice questions assessed the students' retention of high level idea units. On the other hand, 58% of the questions assessed details or scriptal knowledge. Because the majority of the multiple-choice questions did not measure high level idea units, one would not expect a significant correlation between the number of high level idea units included in their summaries and their performance on the multiple-choice comprehension tests. In future research, care must be taken to develop questions which assess the most important idea units in the text.

Conclusions and Future Research Implications

Overall, the present study failed to demonstrate the facilitative effects of summarization and self-questioning training on LD students' recall and comprehension of texts. The present study ineffectively took into account text signaling devices (i.e., headings), the matching of task demands with the subjects' problem solving capacity, the length of time required to teach the strategies to mastery, and the importance of using an interactive learning approach to move the passive LD reader to an active mode. In addition, the absence of a significant correlation between the number of high level idea units included in the students' summaries and their performance on the

multiple-choice comprehension tests is probably due to the failure of the comprehension questions to assess the high level idea units of the passages and the failure to assess other factors which may have affected the students' summary writing abilities (i.e., prior knowledge, writing ability, topic interest).

Based upon previous and present research, it appears that the extent and explicitness of training are important features contributing to the successful training of cognitive strategies (Brown, 1981; Butterfield & Belmont, 1976; Campione & Brown, 1986; Palincsar & Brown, 1983; Wong et al., 1986). Overall findings illustrate the need to select strategies for training that are compatible with a child's problem solving skills, that utilize an interactive social teaching approach, and that incorporate cognitive and metacognitive aspects of learning (Brown, 1980; Brown & Campione, 1986; Herrnstein, Nickerson, Sanchez, & Swets, 1986; Vygotsky, 1978).

Future research should focus on how best to achieve educational benefits for LD students from the instruction of cognitive and metacognitive skills, and in particular on necessary and sufficient skills and training time parameters to sustain such benefits.

Reciprocal teaching (Brown & Palincsar, 1987, in press; Palincsar & Brown, 1983) and summarization self-questioning procedures (Wong et al., 1986) as they are presently implemented, are exemplary training models for cognitive and metacognitive learning skills which foster substantial educational benefits. However, more parsimonious cooperative-learning training models, which are less dependent upon teachers' resources and time, must be established in order to utilize such strategies in a typical resource classroom.

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Table 1

Handout for Summarization Condition

Five Steps to Help with the Rules for Writing a Summary

1. MAKE SURE YOU UNDERSTAND THE TEXT. Ask yourself "What was this text about?" "What did the writer say?" Try to say the general theme to yourself.

2. LOOK BACK. Reread the text to make sure you got the theme right. Also read to make sure that you really understand what the important parts of the text are. Star important parts.

NOW USE THE FIVE SPECIFIC RULES FOR WRITING A SUMMARY

3. RETHINK. Reread a paragraph of the text. Try to say the theme of that paragraph to yourself. Is the theme a topic sentence? Have you underlined it? Or is the topic sentence missing? If it is missing, have you written one in the margin?

4. CHECK. Did you leave in any lists? Make sure you don't list things out in your summary. Did you repeat yourself. Make sure you didn't.

5. DOUBLE-CHECK. Did you skip anything? Is all the important information in the summary? Are there any paragraphs that you forgot to summarize?

Five Specific Rules for Writing a Summary

1. REDUCE LISTS. If you see a list of things try to think of a one or two word name for the whole list. For example, if you saw a list like eyes, ears, neck, arms, and legs, you could say "body parts." Just write the name of the things on the text, above the list.

2. USE A TOPIC SENTENCE IF ONE IS GIVEN YOU. Often authors write a sentence that summarizes a whole paragraph. It is called a topic sentence. If the author gives you one, underline it and use it in your summary. Just copy it down from the text into your summary.

(table continues)

3. MAKE UP YOUR OWN TOPIC SENTENCE. Not all paragraphs have topic sentences. That means that you may have to make one up for yourself. If you don't see a topic sentence, write one of your own in the margin. Use your sentence in the summary.

4. GET RID OF REPEATED STUFF. Go through the text and use the red pencil to cross out stuff that is repeated. Get rid of it.

5. GET RID OF UNIMPORTANT STUFF. Go through the text and use the green pencil to cross out stuff that isn't important. Get rid of it.

Table 2

Handout for Self-questioning Condition

Self-Questions to Help with the Writing of a Summary

1. Ask yourself "WHAT AM I STUDYING THIS PASSAGE FOR?" You are studying this passage so you can write a summary and answer some questions you will be given later.

2. Ask yourself "WHAT IS THE MAIN IDEA IN THIS PARAGRAPH?" To find the main idea, use these 3 rules:
   a) the main idea is the sentence that tells what the whole paragraph is about
   b) most of the other sentences in the paragraph refer to it, and
   c) most of the other sentences in the paragraph elaborate on it.

   When you have found it, underline it. If no one sentence states the main idea, underline that part of the paragraph that reflects the important point.

3. To check to see if you have found the correct sentence or part of the paragraph that reflects the main idea, cover up the underlined sentence(s) and read the remaining sentences in the paragraph. Ask yourself "DO THESE SENTENCES MAKE SENSE NOW THAT I HAVE COVERED UP THE MAIN IDEA SENTENCE(S)?" If the remaining sentences make no sense, you have found the main idea.

4. THINK OF A QUESTION ABOUT THE MAIN IDEA YOU HAVE UNDERLINED. Remember what a good question should be like. Look at the criteria for a good question.

5. LEARN THE ANSWER TO YOUR QUESTIONS. After you finish reading, cover up the text and try to recall the answers to your questions.

Steps for Writing a Good Question

1. Does the question ask for the main point of the paragraph? If not, form a question that does.

2. Does the question repeat words or phrases from the text? If so, could these be replaced with similar words of your own?

Table 3

Adjusted Means for the Four Dependent Variables

Instructional Group		Time of testing		
		Pre	Immediate	Delayed
Control	C1	1.76	1.72	1.76
	C2	1.71	1.37	1.47
	C3	1.59	1.23	1.38
	S	1.43	1.02	1.18
Self-Questioning	C1	1.74	1.88	1.91
	C2	1.63	1.61	1.51
	C3	1.35	1.51	1.19
	S	1.12	1.40	1.27
Summarization	C1	1.87	1.97	1.83
	C2	1.76	1.69	1.47
	C3	1.69	1.76	1.16
	S	1.66	1.27	1.53

Note. C1 = Text explicit questions. C2 = Text implicit questions. C3 = Script implicit questions. S = High level idea units (i.e., level 4).

Table 4

Raw Proportions and Standard Deviations for the Four Dependent Variables

Instructional Group		Time of testing					
		Pre		Immediate		Delayed	
		M	SD	M	SD	M	SD
Control	C1	.61	.28	.58	.25	.60	.28
	C2	.54	.29	.39	.16	.44	.17
	C3	.50	.24	.33	.12	.40	.27
	S	.44	.20	.25	.13	.33	.19
Self-Questioning	C1	.58	.22	.64	.23	.65	.14
	C2	.54	.14	.53	.21	.48	.21
	C3	.40	.17	.48	.30	.33	.21
	S	.31	.21	.43	.20	.36	.17
Summarization	C1	.63	.15	.67	.25	.59	.24
	C2	.61	.10	.56	.31	.47	.22
	C3	.56	.29	.59	.30	.31	.26
	S	.55	.16	.36	.15	.49	.16

Note. C1 = Text explicit questions. C2 = Text implicit questions. C3 = Script implicit questions. S = High level idea units. Control MIQ = 84.80, SD = 4.59; SelfQ MIQ = 92.30, SD = 7.92; Summ MIQ = 92.25, SD = 8.83.

Appendix A

Computers in Our World

What are computers? In their short history, they have been called by many names. Some people talk about them as mechanical monsters that have taken over man's work. Others say they are servants of mankind. Writers sometimes refer to them as thinking machines, giant brains, robots, electronic brains, and modern Frankensteins.

Computers are quite different from all of these. They are not monsters. Unlike robots or Frankenstein, they do not look at all like human beings. They have no arms or legs, nor do they have a heart, feelings, or a brain.

In appearance, they look more like rows of metal cabinets or lockers. Inside the metal walls, however, are hundreds of wires and vacuum tubes and transistors, as in many radios and TV sets, only much more complicated. Often they are not a single machine, but a system of several machines. Some of the largest of these systems can take up most of the space in a room larger than a school library. Other computers are no bigger than a typewriter placed on a desk.

To compute means "to count or to figure," and this is the main job of a computer. It adds, subtracts,

multiplies, and divides. One of the largest of these thinking machines does so at the hard-to-imagine speed of 250,000 additions a second!

Computers do more than compute, however. One of their talents is that they can compare one number with another. They can compare one name with an entirely different one, one meter reading with an earlier record. Because they can compare, they can also select and sort and obey instructions.

Computers are used for two general purposes: data processing and process control. Data is another word for information, and processing means "handling." This is just what computers do in such cases. They handle facts and figures. They do many different things with these facts and figures. They add and subtract, combine items in new ways, put names in alphabetical order, play word games, and solve difficult puzzles.

Process control computers go one step further than data processing. They not only dig out information; they use that information to control other machines. Process control computers run chemical factories, power plants, cement and paper mills, and manufacturing at other types of factories. The computers keeping an eye on Apollo II's flight were examples of data processing in operation.

Live it Well

What would it be like to live forever? Many people have wanted to stay young. The Spanish explorer, Ponce de Leon spent years looking for a way to stay young. He searched in what is now Florida for the fountain of youth. He believed that water from this fountain would make him stay young, so he could live forever. Too bad, poor fellow! He died almost 500 years ago.

Maybe he was looking in the wrong places. The little village of Kutol is in the southern part of the U.S.S.R. People there seem to have found the fountain of youth. Many people in Kutol live to be a hundred years old and some live much longer. One woman in Kutol is 140 years old, and she still works on a farm! The oldest man is 167 years old. He is older now, if he is still living. He said that he was a youngster until he was about 90, but now he's getting older.

In the U.S.A. we can expect to live to about 70 years. How can these people in Kutol live so much longer? Doctors have been studying them to learn the secret of their long lives.

At first doctors looked at the food eaten by the

villagers. Their diet is made up of meat, milk, fruit, and vegetables. This diet is not very different from the food we eat. The secret of long life is not in the diet.

Visitors to Kutol have reported that it is the fitness of the elderly rather than their diet that is so special. These people, over a hundred years old, seem to have very good health. They stay active and work hard every day. The elderly have regular jobs to do. These jobs include working in the fields, feeding the chickens, washing clothes, cleaning homes, and caring for grandchildren. It seems that these people work hard to stay young.

When asked how she was able to live so long, a 110-year-old woman stated, "I can't explain it fully, but there seems to be something special in the life here." What's it like to be over a hundred? A 120-year-old man tried to describe it. He said it was best to be young. But he had good health, felt well, had wonderful children and enjoyed himself. He said that every day is a gift when one is over a hundred years old.

Word Travelers

When the first settlers came to America, they brought with them their clothing, their tools, their religions, and their customs. And they also brought their languages. Around the time that the first English-speaking settlers set sail for America, the English language was made up of about 150,000 words. Today, more than 350 years later, an unabridged dictionary of the English language has about 450,000 words. Where did all these new words come from?

There are several ways that speakers of a language get new words. One of the ways is by borrowing words from other languages. This is most likely to happen when people who speak different languages live and work side by side. In early America the English-speaking settlers came in contact with Indians, Frenchman, Spaniards, and Dutchmen. During this period the English settlers began to use many words from the languages of these other people. They borrowed words, and the vocabulary of American English began to grow. Let us see how and why this happened.

The first English settlers in America saw plants and animals in their new home that they had never seen before. They had no names for them, but the Indians did. The settlers heard these Indian name-words and

tried to repeat them. If they could, they said the words exactly as the Indians did. But if it was too hard for the settlers to pronounce some of the Indian words, they changed them a little. In 1608 Captain John Smith reported seeing a strange new animal about the size of a large cat. He first wrote its Indian word as a rahaugcum. By 1672 the word was written and pronounced in English as racoon, just as we know it today.

Woodchuck, chipmunk, moose, opossum, and skunk were made from some other Indian names for animals the settlers had never seen before. Hickory, pecan, squash, and succotash were Indian names for trees and vegetables that did not grow in England. Because there were no English words to describe these things, the settlers simply borrowed the Indian names for them.

As the settlers and Indians continued to live and work together, the settlers learned much about Indian life and customs. They saw clothing, tools, and dwelling places they had never seen before. Moccasins, wigwams, tepees, totems, tomahawks, and canoes were new things for the settlers, and their names became new words in English.

No Way Home

At least one group of animals migrated when they should not have. There was once a bridge of land between Asia and Australia. In Asia, animals with pouches once lived. They are called marsupials. They crossed the bridge between Asia and Australia. Then came a change in the earth's crust. The bridge was gone. The marsupials had to remain in Australia.

We know that at one time marsupials lived all over the worlds. Fossils of marsupials have been found in North America, South America, Europe, and Asia. Today, the opossum, which is a marsupial, lives only in North and South America. The marsupial shrew lives only in Central America. The shrew and the opossum are the only marsupials found outside Australia.

Anyone can tell you that the opossum and the kangaroo are marsupials. They have pouches on their bellies. They carry their young in those pouches. What most people don't know is that there are marsupial bears, dogs, hyenas, wolves, mice, and cats. They all live in Australia. They place their babies in their pouches at birth.

The young marsupial must feel quite safe. It is placed in the pouch of its mother when it is born.

There it stays until it is able to get out of the pouch and move around. But it can get back in the pouch when it is cold, hungry or afraid. We know that a young joey, or baby kangaroo, may stay in its mother's pouch for as long as six months. Just think of the load that mother must carry when her little joey wants to sleep late!

The loss of that bridge between Australia and Asia surely tells us why there are so many marsupials in Australia today. It also tells us why there are so few marsupials any where else in the world. Trapped on the land of Australia, the marsupials could not swim back to their homes in Asia. They had no choice but to remain in Australia. The opossum and the marsupial shrew of the Americas surely did not migrate.

There's a lesson to be learned from this story. It's all right to migrate, if you need to move away from home. Just be sure that you have a way to get back home, in case you want to go back!.

Grizzly

California's state animal-the grizzly bear-seen on that state's flag has not been reported in the state since 1922. All over the western part of the United States the grizzly has been relentlessly destroyed so that it may become extinct. This "King of the Wilderness" is thought by some to be the most dangerous of all game animals. Perhaps that is the reason why it is the most sought after and the most highly prized by hunters.

Before the exploration and settlement of the West, many thousands of grizzlies roamed the mountains and plains. Now it is believed that only 750 grizzlies survive within our Western states, especially Washington, Colorado, Wyoming, Idaho, and Montana. It is estimated that 10,000 survive in Alaska, and many thousands more in Canada.

The grizzly wears a loose-fitting fur coat. It averages from 181-272 kilograms in weight, but has been known to weigh as much as 453 kilograms. Its shoulders are humped and the hair on its back is tipped with silver, giving it a frosty appearance. Its tail is very short. Its legs are short too, but very powerful. It walks flat on the soles of its feet, which have long,

heavy claws, slightly curved. Through the body is heavy and the legs are short, the grizzly can run rapidly for a short distance. It can outrun a horse in the first 90 meters. While it is said to have a savage disposition, it attacks a person only when it has been cornered or provoked.

The grizzly feeds on both vegetable matter and animal flesh. It likes grass and roots, fruits, berries, insects, honey, and fish. It digs out small rodents from their burrows. It preys upon sheep and cattle. It will eat carrion.

Grizzlies don't reproduce in great numbers. Females do not mate until they are three or four years old. They mate only every other year and they normally give birth to only two cubs. Much killing has been done not only by game hunters but also be sheep ranchers and cattle owners who saw the grizzly as a menace to their livestock.

In some areas, action is being taken to help the grizzlies survive. Colorado has gone all out to protect grizzlies. The State Fish and Game Department officials there declared the grizzly to be a nonhuntable animal, and a grizzly refuge was set up.

The government of Alberta once thought it was necessary to protect people from grizzlies; now it feels

that grizzlies are the one to be protected-from people. The government has set aside an area of 3,120 square kilometers of land in northern Alberta which is to be a game reserve for these mighty "Kings of the

At the End of a String

No one really knows when or where the first kite fluttered in the wind. However, most scholars think that the Chinese people had kites about 2,000 years ago. European explorers who visited the East brought kites to the West. They probably brought the brightly colored kites home to their children as gifts.

Kite flying has always been a very important sport in Asia. In China there used to be a great holiday each year on the ninth day of the ninth month. It was called "The Festival of Ascending on High." Thousands of people, young and old, flew their kites on that day. Kites of different shapes and sizes filled the sky. There were kites that looked like dragons, lions, and tigers. And there were kites that looked like fish, birds, and snakes.

In Japan a special kite day is still held each year on May 5th. All day long, fish-shaped kites are flown from the roof tops. They are flown in honor of a brave Japanese boy named Kintaro. Kintaro once saved a group of fishers by killing a man-eating fish.

Kite fighting is the most popular kite sport in India. There are kite makers who spend their lives making fighter kites. The fighter kites are made of

colored paper. It is stretched over bamboo sticks. The kite line has two parts. One part is the regular string. It is usually white. The other part is a brightly colored cutting string. The cutting string is covered with coated glass. In kite fighting, a kite flier tries to maneuver the cutting string of the kite across an opponent's white string. When the white string is cut, the loser's kite flies away.

Kites are not only for fun. They have been very useful throughout history. Ben Franklin's famous kite experiment proved that lightning was really electricity. And the U.S.A. Weather Bureau has used kites to learn more about weather. They have sent kites up with scientific instruments attached to them.

The most common kites flown in the United States are the Eddy and box kites. The Eddy kite was introduced in our country by a man named William Eddy. It really came from Asia though. Most kids fly the Eddie kite. It is diamond-shaped. And it has two crossed sticks in back. The box kite was invented in the early 1890's by Lawrence Hargrave.

Kites have their place in the past and in the present. And if you have never flown a kite, you ought to. Then you will better understand why people have been flying kites for the past 2,000 years - and

probably always will.

Bells

One of the oldest ways to send a message is by ringing a bell. People began to make bells about 5,000 years ago. Before then, they made rattles with pebbles, shells, or hollow pieces of wood. But later people found out how to mix copper and tin to make bronze. Then they could shape bells that would ring loudly. The sound would carry for long distances.

Bells have often helped soldiers in battle. Many years ago, soldiers would string bells on nets. Then they would stretch the nets across a path or a river. If anyone tried to sneak up on the soldiers, the bells sounded an alarm.

Sometimes army uniforms were decorated with bells. Enemy troops climbing over a castle wall would listen for the bells on the uniforms of the guards. As the guards walked along the wall, the enemy would hear the bells. When the noise passed, the enemy troops would quickly climb over the wall. They could start an attack before anyone knew they were there.

There are many legends about bells. In England there is a story that a whole village disappeared in an earthquake one Christmas day. As the town sank into the earth, all the Christmas bells were ringing loudly.

After the earthquake, people said they could hear the lost bells ringing when they put their ears to the ground. Sound does travel through the earth. These people probably heard bells from the next town. But they liked to think they heard the lost bells.

Often fisherman have reported hearing bells ringing under the sea. Sailors say that mermaids ring the bells to warn sailors of rocks hidden under the waves.

Bells still send us messages. Doorbells tell you someone is waiting outside. A bell can tell you when an elevator is comging, when your school day begins and ends, and on a bus, the bell tells the driver when you want to get off. Will we ever be able to do without bells?

The Ice Age

Slowly - inch by inch, foot by foot - the ice crept forward. From the north great sheets of ice spread out, swallowing the land. From the high mountains rivers of ice reached down and filled the valleys. All things gave way before the ice.

Ice ground up rock. It carved the sides of mountains. It dug great hollows in the earth. It scooped up dirt, gravel, stones, and boulders. Whole forests fell, trees snapping like toothpicks before the flow of ice.

There was snow, driven by howling winds. There was rain that fell and froze. The ice grew thousands of feet thick. And growing, it pushed farther south. Year after year it flowed on, covering meadows, lakes, valleys, and hills.

The ice was felt far away, for winds sweeping across it carried the cold of winter to the land ahead. All living things fled before the cold - or died. And this went on for thousands of years.

Sometimes the ice would melt at the edges and shrink back. Then the forward flow would start again. Creeping, grinding, carving, scraping, the ice of ever-winter would swallow the land. Finally, the great

tongues of ice, the great sheets of ice, drew back for good, leaving behind their floods of melt-water.

In time, life came back to the land, for the ice was gone. It had drawn to the far north, back to the mountain heights. The land, of course, was changes. There were new lakes and rivers born of melting ice. Ice had carved out hills and valleys. There was land scraped bare of soil. There was land made rich by soil the ice had dropped.

On this ice-free land, plants grew and spread. Animals came to live on it. And people followed the animals. Thousands of years passed. People made the land theirs. They grazed herds, planted crops, and built cities where once sheets of ice had glittered in the sun. And no one guessed the wintry secrets of the past.

Stone Age Today

Suddenly, something moved across the trail. Dafal stopped. He listened. The eyes of the experienced hunter moved slowly back and forth across the trail. Had a deer made a dash for safety. Dafal slowly made his way along the narrow trail. The trees around him were the tallest he had ever seen. They rose 200 feet in the air. Then the brush beside the trail moved. A man stepped out into the middle of the trail. Dafal started to reach for his pistol. But the unarmed man smiled and began talking. Dafal did not understand the words, but he knew they were friendly words. Dafal also knew that he had made a great discovery. He was the first person to see a Stone Age caveman on the island of Mindanao.

Since Dafal's discovery in 1971, we have learned some interesting things about these people who still live in caves. They are called the Tasadays. They are a small tribe of 24 people. There are 10 men, 5 women, and 9 children in the tribe.

The Tasadays have no tools for farming. They do not raise their own food. They do not have cloth. What clothing they wear is made from leaves. And the Tasadays have no dishes or pottery. They use leaves and

pieces of bamboo for dishes and containers.

Where do the Tasadays get their food? And what do they eat? Tasadays spend a few hours each day collecting food. In the streams, they catch tadpoles, frogs, and fresh water crabs. These are wrapped in green leaves and put next to hot coals to cook. From the ground, the Tasadays dig a root called yam. And they collect fruit, berries, flowers, and wild bananas.

The Tasadays have no weapons. They trap but do not hunt. Once in a while they get lucky and find an animal in one of their traps. The Tasadays are fond of eating deer, wild pig, monkey and mouse.

The Tasadays are a loving people. Everyone in the tribe is a parent to the children. When there is very little food, the children always eat first. Unlike other groups of people in the world, the Tasadays have no word for war.

Easter Island

Easter is an island in the South Pacific. It is a small, plain-looking island. The most unusual features of Easter Island are its great stone statues. They are everywhere. Large stone faces look out over the sea. What strange stories they could tell!

Who were the statue makers of Easter Island? Where did they build the statues? Then, why did they stop? Old legends tell us about the people. Years ago the island was settled by people who came in large canoes. They fished, planted crops, raised children and fought wars. But these early folks must have spent most of their time making statues.

Today, the island is covered with nearly 1,000 huge statues. Some of them are as tall as three-story buildings and weigh over 60 tons. The statues have long heads with sloping brows. Their eyes are deep hollows cut in the hard rock. Their ear lobes hang low on the sides of their faces. Their noses are long and wide. Their lips are pursed tightly together giving each a grim look. They have bodies but no legs. Their arms end with long, slender fingers that seem to be holding tightly to large, rounded bellies. Some of the statues are standing upright, but most of them are lying flat on

the ground.

A visit to the old stone quarry shows us how the statues were made. There are over 200 statues in different stages of completion. These giant statues were chipped from solid rock by stone tools. Workers must have used strong ropes to drag the huge statues to their resting places. It was a dangerous job to stand the statues upright. You wouldn't want to be under one when it fell.

One theory states that the statues were built to honor the dead. One day, as the workers chipped away, a war started. All of the workers stopped chipping, dropped their stone tools, and went to the battle. The statue builders must have lost the war, because from that day on, no more statues were finished. Most of the other statues were pushed over.

Little is known about the early folks of Easter Island. The secrets of these great stone carvers will remain hidden forever.

Balance of Nature

Scientists are aware of a system at work among living things. In this system, the number and kinds of plants and animals in a given area remain fairly stable. All animals and plants within the area depend upon each other for the necessities of life. When all goes well, nature remains in balance.

One very important part of the balance of nature is the food chain. All living things must eat in order to stay alive. Plants and their seeds are the food of many animals. And these animals in turn become the food of other animals.

For example, picture a frog sitting on a stone. He seems to be asleep, but he is really waiting for something to eat. Suddenly he flicks out his long tongue and catches a fly. Again and again his tongue darts out, catching more flies. The frog gulps them down and sits still again, waiting for more food. Then, without warning, a snake glides up behind the frog and swallows him. Later a hawk swoops down, grabs the snake, and eats it. This is the way the food chain works.

Animals that use other animals for food help to maintain the balance of nature. Natural enemies eat

enough wildlife to prevent any species from becoming so numerous as to endanger other groups. Usually, enough creatures of each kind stay alive to prevent the species from becoming extinct. Natural enemies also help prevent some animals from becoming so numerous that they eat all the plants needed for food by other wildlife.

Among other effects upon the balance of nature are water supply, climate, and disease. Flood, fire, and drought can upset this balance. Sometimes a disaster may kill many animals, thus allowing a surviving species to become too numerous. When this happens, many of the survivors will then die because there will not be enough food for all of them. Once the balance of nature is upset in an area, many years must pass before things can return to normal.

The Incas

The Inca Empire once covered the western part of South America for more than 2,500 miles. Well over five million Incas lived in an area from the Andes Mountains of Peru all the way to Chile. The Incas were a highly civilized people. They ruled for almost one hundred years. The Inca society was divided into four social groups. The most important groups were the rulers and nobles. The least important were the commoners and slaves.

Farming was the way of life for most Inca people. The people grew and stored potatoes, corns, beans, and squash. Those crops could then be used when food was scarce. Farmers also gave their food to the armies, rulers, and religious people.

The Incas were some of the greatest craftspeople of their time. Their arts and crafts skills were considered very important. The Incas made clay pottery and beautiful gold, silver, copper, and bronze ornaments. They also made huge buildings out of stone without the use of cement. The stone blocks were tightly fitted together. Those large carved stones were pulled by thousands of people to the building place. There the huge stones were fitted into great buildings.

The Inca society continued to spread throughout the western part of South America from 1450 to 1532 A.D. It was about 1532 that Spanish explorers found the wealthy empire of the Incas. The Spanish wanted the gold and silver riches. Fighting then began between the Spanish and the Incas. It continued for more than thirty years. The Incas did not have guns, armor, or horses, and they were finally conquered by the Spanish in 1569.

The Spanish conquerers treated the Incas badly. They took much of the Incas' gold and silver wealth. The Spanish explorers also tried to destroy the Incas' religious beliefs. Many of the brave people were used as slaves. The number of Incas dropped to less than two million people. Today over six million Incas still live in the western part of South America.

Quicksand

What is quicksand? Tests have shown that ordinary sand can become quicksand if water is pushed up from under it. The pressure of this water may come from a nearby river, ocean, or swamp. The water pressure separated the grains of sand so that the grains float. Quicksand is not formed when water floods over the top of sand. Then the water only sinks down through the sand. The sand packs itself tight again.

Beneath quicksand is a layer of clay, or other hard substance. The clay keeps the water from draining away. The stronger the water pushes up from beneath, the quicker the sand will be. In some places the pressure changes from time to time. This means that a place can be perfectly safe sometimes and dangerous at others.

Many animals and some people have drowned in quicksand, but only because they struggled and worked themselves in deeper. Quicksand is far from rare. If you go outdoors a lot, sometime, somewhere, you might find yourself sinking. What should you do?

First, try to run clear. It is possible that the sand will be firm enough to withstand the lighter step of a runner. However, if you are already too deep, do not struggle. Bend your knees and flop down on your

back. By itself, quicksand cannot suck you down. So the bigger the area of sand your body covers, the slower you will sink. As you lie flat, straighten out carefully. Then roll over slowly and evenly until you reach firm ground.

It is also possible to swim out of quicksand. Anything that will float in water will float in quicksand-better in fact. That is because quicksand is thicker than water. Use a backstroke to swim. But swimming will be slow. Don't tire yourself quickly by trying to rush it. Yell for help if there is any chance of being heard. A branch, rope, belt, or piece of clothing can be used for rescue work. If you find yourself caught in quicksand, you can escape. But quicksand is still a good thing to avoid.

Wolverine

The long and sharp claw marks in the snow bring fear into the hearts of animals. Such fear is also known by people living in the wilds. Those marks are made by Gulo, better known as the wolverine. For days it will follow its prey. Quietly listening, always watching, the wolverine slowly keeps coming after game. It is afraid of no living thing. The wolverine seems to kill just for the love of killing. This fearless animal often destroys more food than it can eat.

The wolverine is a member of the weasel family. It is related to otters, badgers, and skunks. The wolverine has been called a glutton because it eats so much food. It has also been called skunk bear because it looks like a small, powerful bear. The wolverine also leaves a strong smell on things when it leaves. It stands about one foot at the shoulder. The wolverine's dark brown fur-coated body may weight up to 50 pounds. It has light stripes on each side of its neck that run to the base on the tail. The wolverine is very strong, clever, and has a very bad temper.

The wolverine can be found in Asia, Europe, and North America. It once could be found in many parts of the United States. The wolverine is the state animal of

Michigan. But a wolverine has not been seen in Michigan for over 100 years! It does live in about six other states.

The wolverine usually travels alone. It doesn't sleep most of the winter like bears do. It has not been known to store food, either. Instead it is always looking for food. The wolverine will hunt almost anything and will attack deer, rabbits, and small bear. The most powerful animal for its size in North America, it will take food away from a mountain lion.

Clever wolverine have been known to remove animals from traps, sometimes even destroying the traps, to break into homes and eat food and damage valuables. Only people have hunted the wolverine. What animal do you know that would be foolish enough to tackle a fearless, jaw-snapping wolverine?

Earthquake

In the early 1900's, San Francisco was shaken by a big earthquake. The city was almost destroyed. Today, if a big quake hit San Francisco again, it could claim 20,000 lives, injure 300,000 people and cause billions of dollars in damage. We know a big quake may hit San Francisco again! We think it is coming, but we don't know when. We need to learn how to predict earthquakes. Then we can save lives.

To predict earthquakes, we must know their cause. Most scientists believe in the plate theory. This theory holds that the outer crust of the earth is made of plates or slabs of land. These plates are always moving. They move slowly like crackers floating in a bowl of soup. They bump into each other. Sometimes they scrape together sideways. These movements of land plates may be the cause of earthquakes.

Before a big earthquake, there are some warning signs. Small earth movements may mean that big jolts are coming soon. The top of the ground may rise slowly before a quake. We have found one place where the land has risen 10 inches in the past 15 years. This uplift is known as a bubble. A change in a bubble may be the start of a big earthquake.

Scientists use meters to measure small earth movements. Some of these meters are so fine they will record a rabbit hopping by. The meters are used to watch for the signs of an earthquake.

China has had some success in predicting quakes. The Chinese look for earth movements and they watch for strange animal behavior. When rats leave their houses, snakes come out of their holes, and birds refuse to roost, a quake may be coming. In 1975, a Chinese village was warned of an earthquake. For two days, in the cold winter, the people ate, slept, and worked outside their homes. When the quake came, it knocked down their homes. But no one was hurt. The warning saved their lives.

We can't stop an earthquake from hitting San Francisco. But if we know when the quake will hit, many lives can be saved. Saving lives is what the prediction is all about!

Migrant Monarchs

Ask for the name of a butterfly, and someone will say, "Monarch!" This is a lovely black and orange butterfly, with dots of white on its wing tips. It is commonly seen in gardens, fields, and meadows. It lives in most parts of Canada and the United States. Its larva prefers to feast on the milkweed. As an adult, it will dip down to almost any type of flower for a sweet sip of nectar.

Until just a short time age, no one knew where the Monarchs from the eastern part of our country and Canada spend the winter. People have seen them flying south, in groups that look like orange clouds. But no one knew where the Monarchs finally came to rest.

In 1976, a Canadian zoologist found millions of Monarchs in their winter home. That was in a small area in the mountains of Central Mexico. There Fred Urquhart, the zoologist, saw many trees so thickly covered with Monarchs that they trees were bending to the ground. Flying only during the day, those tiny insects had covered thousands of miles to reach a place where they could mate and spend the winter. Can you imagine what it would be like to see an entire mountain covered with orange Monarchs? There were millions of

them, hanging on the branches of the trees and flying from tree to tree!

When spring comes, the Monarchs head back to their home in the north. Along the way, most of the males die. But the females hurry to get back to the land of the milkweed. There they lay their eggs and start the cycle of life again. Since the lifespan of a Monarch is only a year, the female dies soon after she has laid her eggs.

We have known for a long time that Monarchs from the western part of North America migrate to California. You can seen them there, on the Monterey Peninsula, near the city of Pacific Grove. They, too, hang on the trees during the winter. People travel from long distances to see them.

Isn't it amazing that such a tiny creature can fly 80 miles a day? It braves bad weather and natural enemies, just to find a place to mature, mate, and then start that long journey back to the north again.

Folk Medicine

For as long as there have been people on this earth, there has been a need for medicine. People get diseases. They ache and hurt. They have fever and chills. They may have insect bites that itch and burn. People cut themselves, burn themselves, and do harm to their bodies by eating bad food or too much food.

More than 40 per cent of the medicine that we take today comes from plants. We use the leaves, stems, bark and flowers of plants to make medicine. Aspirin, the world's most common medicine, was once made from the bark of the willow tree. Now it is made from chemicals.

Folks in all parts of the world have made their own medicines. They still do. The practice of folk medicine can be found in cities and rural areas throughout our country. It can be found in any part of the world.

Some people laugh at folk medicine. They think it is no good for people. But don't tell that to the thousands of women and men who mix their own medicines, made from plants and animals. From their knowledge of the healing powers of plants have come many of our most valuable drugs, When Alexander Fleming discovered penicillin in 1928, he gave the world a killer of germs.

And he found penicillin in a common mold!

Of course, you must know what you are doing when you use herbs or other plants to cure a cold to heal a wound. People who use such medicine are very careful. They gather roots, leaves, flowers and stems of plants. They may dry most of them or mix them in a liquid.

Much of modern medicine is based on what people have learned over thousands of years. Today, plants are being tested all over the world, as we try to find a cure for cancer. It may be that someone in the mountains of Mexico, the jungles of Africa, or a deep valley in Tibet will find that plant. A common garden flower, the foxglove, gives us digitalis, a drug that is taken by people who have heart problems. Of course, herbs can be dangerous. Too much of anything, or of the wrong thing, can kill - rather than cure!

From Jesters to Joeys

The clowns you see are modern circus clowns. But clowns did not always look like this. During the Middle Age, kings had jesters in their courts. The court jesters, as they were called, told jokes. They did tricks for the king and his friends. They wore suits of many colors. They also wore little bells so that they jingled when they walked.

Around the sixteenth century, a new type of clown character appeared in Italian theater. He was called a Harlequin clown. He wore a checkered suit with a ruffled collar and a black mask. The Harlequin clown always tried to soil the tricks of the other clowns.

Joseph Grimaldi was a pantomime actor in the eighteenth century. He was the first person to use white make-up on his face during his performances. He became very popular. Many clowns copied him. Now white-faced clowns are called "joeys" after Joseph Grimaldi. About this time, there was a clown character in the French theater called Pierrot. He wore a special costume. It had a large, loose shirt with a ruffled collar. He also copied Grimaldi's white make-up.

There are four main types of clowns. The Auguste clown may have a white, red, or blue face. Or

he may paint his face many different colors. He may wear any kind of costume he wishes. The Grotesque clown usually has a white face and a big red nose. He wears the silliest costume he can think of. It is always exaggerated. The Character clown is usually dressed as a tramp. Nothing ever turns out right for him. The Midget clown dresses as an elf, an animal, or a baby. All four kinds of clowns call their acts gags.

A clown's face is very important. A clown may try several different faces before choosing one to use. But once a clown has decided on a face, no other clown can copy it.

Clowns keep all of their costumes and props in a trunk. When they are getting ready for a show, they share a dressing area. It is known as Clown Alley. The rest of the circus performers stay away from here unless they want to have tricks played on them. This doesn't keep the clowns from playing tricks, though. They just play tricks on each other!

Appendix B

QUESTIONS: COMPUTERS

Circle the correct answer.

1. What are computers?

   a) robots

TI (b) a system of machines

   c) a row of metal cabinets

   d) adding machines

2. For what general purposes are computers used?

   (a) data processing and process control

TE b) running factories

   c) computing numbers

   d) controlling other machines

3. What is the main idea of this story?

   a) computers are not monsters

   b) computers are servants to man

TI (c) computers handle information and control other machines for man

   d) computers help man to deal with numbers

4. The main job of a computer is

   a) to control other machines

   b) to be man's servant

TE c) to compare numbers

   (d) to compute

5. How are the data collected on Apollo missions?

a) by the astronauts when they walk on the moon

SI b) by cameras and rock samples

(c) by computers handling facts and figures input by man

d) by scientists and their theories

6. Data is another word for

(a) information

TE b) computer

c) handling

d) typewriter

7. What determines whether or not Apollo astronauts can blast off for the moon?

a) NASA

TI (b) data processing

c) astronauts

d) mechanics

8. Process control computers not only dig out information, but also

(a) use the information to control other machines

TE b) handle facts and figures

c) add and subtract

d) solve difficult puzzles

9. The usefulness of a computer depends upon

a) the size of the computer's typewriter

S1 (b) the person programming the computer

c) the speed of the computer

d) the printer of the computer

10. How are computers different from robots, electronic brains, and giant brains?

a) computers have no arms and legs

b) computers are made of hundreds of wires and tubes

T1 (c) computers are a system of several machines

d) computers can add at a speed of 250,000 additions a second

QUESTIONS: LIVE IT WELL

Circle the correct answer.

1. In the story, where do the oldest people live?

a) Florida

TI (b) southern part of the U.S.S.R.

c) southern part of the U.S.A.

d) Spain

2. How do the diets of these people compare with our diets?

a) they eat more dried fish than we do

b) their diets include more fruit and nuts than ours

c) they don't eat meat or milk products

TE (d) our diets are basically the same

3. Ponce De Leon explored Florida because he was searching for

a) gold

b) land and swamps

TE (c) the fountain of youth

d) a way back to England

4. What is the main idea of this story?

a) the secret to long life is a special diet

TI b) the fountain of youth is in the U.S.S.R.

c) if you work hard, you will live to be a hundred

(d) it is better to grow older and word hard than not to grow older

5. What is the secret of living a long life?

a) good diet

SI (b) no one really knows

c) good health

d) staying active and working hard

6. In the U.S., we can expect to live to about

a) 50 years

b) 100 years

TE (c) 70 years

d) 90 years

7. From what country was Ponce De Leon?

a) England

TI (b) Spain

c) France

d) Russia

8. The people in Kutol who are over 100 years old seem to have very good

TE (a) health

b) diets

c) jobs

d) doctors

9. Why do the people in Kutol live to be so old?

a) because they eat a special diet of meat, milk,

fruit, and vegetables

b) because they drink water from the fountain of youth

T1 (c) because the elderly are fit, stay active, and work hard everyday

d) because they slepp 10 hours a day

10. When did Ponce De Leon die?

a) between 1440-1470

b) between 1775-1825

c) between 1600-1650

S1 (d) between 1490-1550

QUESTIONS: WORD TRAVELERS

Circle the correct answer.

1. Where did all of the words in the English language come from?

a) English settlers made up words for things they never saw before

TI (b) English settlers used and borrowed words from other countries

c) English settlers used a dictionary to find words for new things

d) English settlers borrowed words from the Indians

2. When did the first English settlers come to America?

a) 1492

b) sometime between 1500-1550

SI (c) sometime between 1600-1650

d) 1400

3. Captain John Smith saw an animal about the size of a large cat. We now call this animal a

a) opossum

b) woodchuck

TE c) skunk

(d) raccoon

4. Why did the English settlers use many of the Indian words?

a) because they could pronounce them easily

TI (b) because there were no English words for many things they saw so they repeated the Indian names for them

c) because they wanted to live and to speak like the Indians

d) because they wanted to make a language both the Indians and the English would understand

5. The English language has about

a) 150,000 words

b) 10,000 words

TE c) 1 million words

(d) 450,000 words

6. What is the main idea of this story?

a) as people live together, they learn about each others' lives and customs

TI (b) languages get new words by borrowing words from other languages

c) the English settlers learned alot from the Indians

d) the English settlers came to America to learn about Indian life

7. When the first settlers came to America, they brought with them

TE (a) clothing and tools

b) animals and trees

c) houses

d) moccasins and canoes

8. Why did English settlers come to America?

SI (a) because it was a beautiful land, rich in food, where they could make their dreams come true

b) because they wanted to leave the cruel English laws

c) because they wanted to meet their Indian relatives

d) because they wanted to practice witch craft in a new land

9. Some Indian names for trees were

a) momosa and dogwood

b) apple and peach

TE (c) hickory and pecan

d) pine and oak

10. Why were there no English words to describe many of the animals, plants, tools, clothing, and homes in America?

a) because the English words were too hard to pronounce

TI (b) because the English people had never seen these things before

c) because the English people wanted to learn the

Indian names for them

d) because the English settles could not speak

QUESTIONS: NO WAY HOME

Circle the correct answer.

1. Why did the marsupials have no way home?

   a) they could not remember how to go home

T1 (b) the land bridge between Asia and Australia was gone

   c) they could not swim

   d) they found living in Australia better than in Asia

2. What is a marsupial?

   a) a mammal

   b) an animal with a pot belly

T1 (c) an animal with a pouch to carry its young

   d) an animal that lays eggs

3. Most of the marsupials in the world today are found

   a) in Central America

   b) in Europe and Asia

   c) in North and South America

TE (d) in Australia

4. Which list of animals is <u>NOT</u> marsupials?

   a) kangaroos and opossums

   b) wolves and hyenas

S1 (c) lions and elephants

   d) bears and mice

5. A joey is the name for

a) a marsupial in Central America

b) a young opossum in South America

TE (c) a young kangaroo in Australia

d) a young marsupial anywhere in the world

6. Why have marsupial fossils been found in the Americas, Europe, and Asia?

a) some of the marsupial species have died

TI (b) at one time, the earth's land was connected and the marsupials lived all over the world

c) marsupials have always lived all over the world

d) the fossils are not marsupials, but their cousins

7. What is the main idea of this story?

TI (a) so many marsupials are found in Australia because they were trapped there by a change in the earth's crust

b) marsupials have been found in the Americas and Europe

c) the marsupial shrew is found only in Central America

d) the opossum is found in both North and South America

8. Why would a young marsupial be safe in its mother's pouch?

a) it would be next to its mother

b) it would not have to run or move on its own

SI (c) it would stay warm and well fed

d) it could hide from its enemies

9. Which marsupial lives only in North and South America?

TE (a) opossum

b) shrew

c) hyena

d) kangaroo

10. How long may a baby kangaroo stay in its mother's pouch?

a) until it is able to get out and move around

b) twelve months

c) three months

TE (d) six months

QUESTIONS: THE GRIZZLY

Circle the correct answer.

1. Why is the grizzly bear being protected?

a) because it is thought to be the most dangerous of all animals

T1 (b) because it is almost extinct

c) because it is highly prized by hunters

d) because it is a menance to livestock owners

2. Why are there thousands of grizzlies in Canada and Alaska and only 750 in the U.S.?

a) it is too hot for them to survive

b) they have migrated north

S1 (c) many grizzlies were killed in the settlement of the U.S. whereas many parts of Alaska and Canada are unexplored

d) the grizzlies to not reproduce in the U.S.

3. The grizzly is the state animal of

T1 (a) California

b) Alaska

c) Washington

d) Colorado

4. What is the main idea of this story?

a) the grizzly bear is a strong animal wanted by hunters, ranchers, and cattle owners

T1 (b) the grizzly bear, has been hunted by man until almost extinct, is not protected by man

c) the griaaly bears have moved to Alaska and Canada

d) the grizzly bear is a large, dangerous animal that eats vegetables and raw meat

5. A grizzly will attack a person

a) whenever it wants to

b) only when it is hungry

TE (c) only when it is cornered or provoked

d) only if you try to run away from it

6. Why is the grizzly considered to be a problem by sheep ranchers and cattle owners?

a) because it destroys their fences

T1 (b) because it kills their animals

c) because it scares their livestock

d) because it scares their families and the ranch workers

7. Female grizzlies normally give birth to

a) one cub

b) three to four cubs

TE (c) two cubs

d) six cubs

8. What do grizzly bears do in the winter?

a) search campsites for food

b) roam the mountains and plains

c) shed its fur coat

SI (d) hibernate

9. What state declared the grizzly to be a nonhuntable animal?

a) Montana

b) California

c) Wyoming

TE (d) Colorado

10. A grizzly has

TI (a) a fur coat, short legs, a short tail, and curved claws

b) a fur coat, short legs, a long tail, and curved claws

c) a fur coat, long legs, a long tail, and curved claws

d) a fur coat, long legs, a short tail, and straight claws

QUESTIONS: AT THE END OF A STRING

Circle the correct answer.

1. Why are there so many different types of kites?
   a) different countries fly different kites
SI (b) different kites serve different purposes
   c) different kites are used on special holidays
   d) people of different ages fly different kites
2. The most common types of kites flown in the U.S. are
   a) fish-shaped kites
   b) fighter kites
TE (c) Eddy and box kites
   d) animal-shaped kites
3. Who brought the first kites to the U.S.?
TI (a) European exploreres
   b) Chinese people
   c) William Eddy
   d) Lawrence Hargrave
4. The most popular kite sport of India is
   a) kite experimenting
   b) kite flying
   c) kite making
TE (d) kite fighting
5. Kites have been used to
   a) drop bombs on people in WWII

TI (b) gather weather information by attaching instruments to them

c) monitor space flights by the Russians

d) tape sports events for all the world to see

6. In kite fighting, what cuts the loser's white string?

a) tree branches

b) the white string is not really cut, just crossed over

c) the winner cuts the loser's string with scissors

TI (d) the glass coating on the colored string

7. Whose kite experiment proved that lightening is electricity?

a) Lawrence Hargrave

b) William Eddy

TF (c) Ben Franklin

d) Kintaro

8. Why will people always fly kites?

a) it is a fun activity for children

b) kites are used to celebrate holidays

SI (c) kites are useful and fun

d) kite flying is a national sport

9. The kites flown in China look like

TE (a) dragons, lions, and birds

b) diamonds and boxes

c) all are fish-shaped

d) human faces

10. Why do Chinese people fly kites on September 9th?

a) to celebrate the boy Kintaro

T1 (b) to celebrate the Festival of Ascending on High

c) to learn about space and the weather

d) to kite fight

QUESTIONS: EARTHQUAKE

Circle the correct answer.

1. What country has had success predicting earthquakes?

   a) United States

TE (b) China

   c) Russia

   d) San Francisco

2. In this story, a bubble is

   a) a mixture of soap and water

   b) a meter to measure earch movements

   c) a village in China

TI (d) land that has risen a little

3. In the early 1900's, what U.S. city was shaken by an earthquake?

   a) Los Angeles

TE (b) San Francisco

   c) San Diego

   d) Los Vagas

4. What is the main idea of this story?

   a) cities are destroyed by earthquakes

   b) China is ahead of the United States

TI (c) predicting earthquakes can save lives

   d) earthquakes always give warning signs

5. What often happens to the land after a big

earthquake?

a) people begin cleaning and rebuilding their homes

b) animals return to their homes

SI (c) small jolts continue for several days

d) the land cracks become filled with water and sand

6. According to the plate theory, earthquakes are caused by

TI (a) the movements of slabs or plates of land

b) bubbles in the earth's crust

c) crackers scraping together in a bowl of soup

d) rabbits hobbing by

7. To measure small earth movements, scientists use

a) rabbits' hops

TE (b) meters

c) bubbles

d) feet

8. Why do earthquakes cause so many deaths and injuries?

a) because people fall into the earth's cracks caused by the quake

b) because people panic and run down other people trying to get out of town causing traffic and confusion

SI (c) because the quake causes buildings to fall and the flying bricks, glass, and wood hit people causing

injuries and deaths

d) because as the earth moves, lava seeps out of its cracks killing people

9. Small earth movements may mean

TE (a) big jolts are coming soon

b) a rainstorm is ahead

c) the army is testing esplosives

d) a volcano is going to erupt soon

10. In the earthquake of 1975, why was no one hurt?

a) all of the people in the town left for vacation

b) it was a small earthquake

c) the people had been warned and left town

T\ (d) the people had been warned so they lived outside their homes

QUESTIONS: MIGRANT MONARCHS

1. Why do Monarchs, after flying all day, stop at night?

a) their natural enemies would get them if they flew at night

SI (b) they have to stop for food and rest

c) they are afraid of the dark

d) they cannot see in the dark

2. The main idea of this story is

a) we know that Monarchs fly to Central Mexico

b) we know very little about the migration habits of the Monarch

c) monarchs migrate to Pacific Grove, California

TI (d) we know the migration habits of the Monarch

3. The Monarch butterfly can fly

a) thousands of miles a day

TE (b) 80 miles a day

c) all day and night

d) 1,976 miles in a day

4. Why do the female Monarchs hurry back to the land of the milkweed?

a) to die

b) to get away from the cold winter

TI (c) to lay their eggs

d) to arrive before the male Monarchs

5. The Monarchs from the western part of North America migrate to

a) Central Mexico

b) Canada

TE (c) California

d) Louisiana

6. Why do the Monarch butterflies fly south for the winter?

a) they prefer to eat the flowers in the south

b) they need to find a place to lay their eggs

c) they need to get away from their natural enemies

SI (d) it is too cold to spend the winter in the north

7. From what country was Fred Urquhart?

a) Mexico

b) United States

c) Russia

TI (d) Canada

8. The lifespan of a Monarch butterfly is

a) 6 months

b) 10 years

TE (c) 1 year

d) 2 years

9. The colors of the Monarch butterfly are

TE (a) black and orange

b) orange and white

c) black and white

d) blue and orange

10. Why did Fred Urquhart say "The trees were bending to the ground?"

a) the wind forced the trees to bend

b) the Monarchs were flying so fast from tree to tree that they caused winds which bent the trees

c) the Monarchs eggs were laid on the tips of the branches which caused the trees to bend

T1 (d) there were so many Monarchs on the trees that their weight made the trees bend

QUESTIONS: FOLK MEDICINE

Circle the correct answer.

1. The main idea of this story is that folk medicine is

   a) of value only to doctors

T1 (b) an important part of the practice of medicine

   c) of value only to those who believe in it

   d) something a lot of people don't believe in

2. Alexander Fleming discovered

   a) digitalis

   b) aspirin

   c) a cure for cancer

TE (d) penicillin

3. Today, we make medicine from

   a) plants

   b) chemicals

   c) animals

T1 (d) plants and chemicals

4. We have had medicine from plants

   a) since 1928 when penicillin was discovered

S1 (b) for a very long time

   c) only in recent years

   d) ever since we started looking for a cure for cancer

5. Medicine that is made from herbs is

a) better than medicine made from chemicals

b) of less use than medicine made from chemicals

T| (c) both helpful and dangerous, depending on its use

d) something only doctors should use

6. Aspirin was once made from

TE (a) the bark of a willow tree

b) the foxglove flower

c) the common mold

d) chemicals

7. From our knowledge of the healing power of plants, we know that

a) we know very little about the value of medicine

b) all types of medicine are now known to us

c) people will always get diseases

S\ (d) there is much we do not know about healing and curing people

8. The practice of folk medicine can be found

a) in cities

TE (b) in any part of the world

c) in rural areas

d) in urban areas

9. What is the importantance of folk medicine?

a) to make use of all parts of plants

b) to cure people with diseases

T\ (c) it has given us knowledge of the healing power

of plants

d) to stop the itch and burn of insect bites

10. Digitalis is used by

a) people with cancer

b) people who eat too much

c) people with fever and chills

TE (d) people who have heart problems

QUESTIONS: FROM JESTERS TO JOEYS

Circle the correct answer.

1. Which clown wears the silliest costume?

TE (a) Grotesque

b) Midget

c) Character

d) Auguste

2. What is the main idea of this story?

a) there are 4 different types of clowns

T1 (b) how clowns clothes, faces and gags have changed from the middle ages to the present

c) how clowns got their start in the theater

d) the different costumes of circus clowns

3. All clowns call their acts

a) tricks

b) jokes

TE (c) gags

d) props

4. What does the white powder a clown pats on do to the make-up?

a) makes the make-up stand out more

S1 (b) sets the make-up so it won't come off

c) acts as a base for the make-up

d) makes the make-up water proof

5. When the circus clowns are getting ready for a show, why do the other performers stay away from them?

a) because they don't like the clowns' jokes

b) because they need to get ready for the show too

c) because they don't want the clowns' makeup on them

TI (d) because they don't want the clowns to play tricks on them

6. The dressing area shared by clowns is called

a) Modern Alley

TE (b) Clown Alley

c) Pierrot

d) Clown Corner

7. Why do you think a clown's face is important?

a) so you can tell he is a clown

b) it tells each clown's job in performing a trick

SI (c) it makes each clown different and special

d) it sets the theme for the show

8. Joseph Grimaldi was the first person to

a) paint his face many different colors

b) wear bells on his costume

c) be a court jester

TE (d) use white make-up on his face

9. How were court jesters different from modern circus clowns?

a) jesters did tricks

b) jesters wore suits of many colors

c) jesters wore make-up

T | (d) jesters told jokes to the king and his friends

10. Each clown is different because of

T | (a) the makeup he puts on his face

b) the costume he wears

c) the tricks he performs

d) the circus he works for

Appendix C

Summary Sheet

Appendix D

Training: Summarization Script

Modeling Script for the Inca Passage

Day 2

Note to instructor: You will read aloud all words that are in capital letters. Words in small letters are instructions to yourself. Do not read these outloud.

Begin the first day of training by saying:

MY NAME IS _____ AND I WAS INVITED BY YOUR TEACHER TO TEACH YOU HOW TO WRITE SUMMARIES. I WILL BE COVERING THE MATERIAL THAT WOULD BE NORMALLY COVERED BY YOUR TEACHER, SO YOU SHOULD TRY TO DO YOUR BEST.

FIRST, I AM GOING TO DEFINE A SUMMARY FOR YOU. A SUMMARY IS A SHORTENED VERSION OF A TEXT. IT SAYS BASICALLY THE SAME THING THAT THE ORIGINAL PASSAGE DID, BUT IT SAYS IT IN FEWER WORDS. THAT IS WHY IT IS CALLED A SUMMARY. IT IS SHORT.

A SUMMARY CONTAINS THE MAIN POINTS OF THE STORY. A SUMMARY DOES NOT CONTAIN YOUR OPINIONS. YOU MAY THINK THE AUTHOR OF A TEXT IS CRAZY AND THAT THE TEXT IS FULL OF LIES. BUT YOU DON'T SAY SO IN YOUR SUMMARY. A SUMMARY IS ONLY A SHORT VERSION OF THE TEXT, NOTHING MORE.

YOU MAY BE WONDERING WHY WRITING A GOOD SUMMARY IS SO IMPORTANT. BECAUSE A SUMMARY CONTAINS ONLY THE MOST IMPORTANT POINTS OF A STORY, IT HELPS YOU TO UNDERSTAND AND TO REMEMBER WHAT THE STORY IS ABOUT.

THERE ARE CERTAIN THINGS THAT YOU CAN DO TO HELP YOU TO WRITE A GOOD SUMMARY. THESE THINGS ARE LISTED ON THE HANDOUT WHICH I AM PASSING OUT TO YOU. (pass the handout out and two texts and one red/blue pencil to each student and put the clear handout on the overhead projector).

YOU WILL SEE THAT SOME OF THE SUGGESTIONS FOR WRITING A GOOD SUMMARY ARE GENERAL STEPS WHILE OTHERS ARE VERY SPECIFIC RULES. HOWEVER, BOTH ARE VERY IMPORTANT WHEN YOU ARE WRITING A GOOD SUMMARY. PLEASE FOLLOW ALONG ON YOUR HANDOUT AS I READ IT ALOUD.

Read the handout aloud to the students. Make sure you read the headings and make natural pauses after each rule. You are to read the handout in the following order: read general steps one and two, read the five summarization rules, and then read general steps three, four, and five.

NOW THAT WE HAVE ALL READ THE GENERAL STEPS AND THE SPECIFIC RULES FOR WRITING A GOOD SUMMARY, I AM GOING TO SHOW YOU HOW TO FOLLOW THE SUGGESTIONS IN THE HANDOUT.

Put the clear copy of the text on the overhead projector.

FIRST, LET ALL OF US READ THE TEXT TO OURSELVES. RAISE YOUR HAND WHEN YOU HAVE FINISHED READING THE TEXT.

Wait until all students have finished reading the text. When they have finished, remove the text from the projector and put the clear handout on the overhead projector.

NOW THAT WE HAVE READ THE TEXT, LET'S SEE WHAT THE FIRST STEP IS TO WRITING A GOOD SUMMARY. (Point to rule 1 on the handout). THE FIRST STEP ON THE HANDOUT SAYS THAT WE SHOULD MAKE SURE WE UNDERSTAND THE TEXT. LET'S ASK OURSELVES, "WHAT WAS THIS TEXT ABOUT." CAN ANYONE STATE THE MAIN IDEA OF THE TEXT?

Put the text on the overhead projector.

Wait about 30 seconds and say: I THINK THAT THIS TEXT IS MAINLY ABOUT THE RISE AND FALL OF THE INCA EMPIRE. DID SOME OF YOU COME UP WITH A SIMILAR MAIN IDEA? (Let the students state their theme if they wish. If they just nod their head, state : GOOD.

Remove the text and put the handout on the projector.

NOW, LET US LOOK AT RULE TWO. (point to rule 2 on the handout which should be on the overhead projector). IT SAYS: LOOK BACK, REREAD AND MAKE SURE YOU REALLY UNDERSTAND WHAT THE IMPORTANT PARTS OF THE TEXT ARE. CAN SOME OF YOU COME UP WITH THE MAIN POINTS?

Put the text on the projector.

Wait about 30 seconds and state: I THINK THAT THE IMPORTANT POINTS ARE (A) THE INCA WERE A CIVILIZED

SOCIETY WITH RULERS, FARMERS, AND CRAFTSMAN (B) THE SPANISH FOUGHT THE INCA BECAUSE THEY WANTED THEIR GOLD AND SILVER, and (C) THE SPANISH CAUSED THE FALL OF THE INCA EMPIRE. DID ANYONE ELSE COME UP WITH ANY MORE IMPORTANT POINTS? (Allow the students a minute to come up with their own ideas. Do not call on any student unless he/she volunteers).

Put the handout on the projector and say: NOW WE ARE GOING TO USE THE FIVE SPECIFIC RULES FOR WRITING A SUMMARY. OUR FIRST RULE (point to the first summarization rule on the handout which should be on the projector) SAYS: REDUCE LISTS. IF WE SEE A LIST OF THINGS, WE SHOULD TRY TO THINK OF A ONE OR TWO WORD NAME FOR THE WHOLE LIST.

Remove the handout from the projector and place the clear text copy on the overhead.

LET US LOOK AT PARAGRAPH 2. NOW FIND THE LIST THAT SAYS POTATOES, CORN, BEANS, AND SQUASH. LETS CIRCLE THIS LIST AND CALL ALL THESE WORDS VEGETABLES. WRITE THE WORD VEGETABLES ABOVE THE LIST. Perform these actions on the clear text on the projector. IF WE WERE WRITING A SUMMARY, WE WOULD INCLUDE THE WORD VEGETABLES IN OUR SUMMARY, BUT WE WOULD NOT WRITE OUT THE LIST. NOW LETS LOOK AT PARAGRAPH 3. NOW FIND THE LIST THAT SAYS GOLD, SILVER, COPPER, AND BRONZE. LETS CIRCLE THIS LIST AND CALL ALL THESE WORDS VALUABLE METALS. WRITE THE WORDS VALUABLE METALS ABOVE THE LIST. Do these actions on the clear text on the projector.

DO YOU SEE HOW WE HAVE SHORTENED THE LIST BY WRITING A ONE OR TWO WORD NAME FOR THE WHOLE LIST. FOR ALL LISTS IN A STORY, YOU SHOULD CIRCLE THEM AND WRITE A ONE OR TWO WORD NAME FOR THEM. THEN THIS NAME SHOULD BE INCLUDED IN THE SUMMARY. NOW THAT YOU UNDERSTAND SPECIFIC RULE ONE, LETS GO BACK TO OUR HANDOUT AND READ SPECIFIC RULE #2.

Put the handout on the overhead projector.

Point to specific rule # 2 and state: RULE NUMBER 2 SAYS TO FIND THE TOPIC SENTENCE AND UNDERLINE IT. IT SAYS THAT THE TOPIC SENTENCE SUMMARIZES THE WHOLE PARAGRAPH.

Put the text on the projector.

LETS LOOK AT PARAGRAPH NUMBER 2. IS THERE ONE SENTENCE

THAT SUMMARIZES THE WHOLE PARAGRAPH? PARAGRAPH 3 TELLS US ABOUT THE CROPS OF THE INCAS. LOOK AT THE FIRST SENTENCE IN PARAGRAPH 2. IT SAYS, FARMING WAS A WAY OF LIFE FOR MOST INCA PEOPLE. NOTICE HOW THIS ONE SENTENCE SUMMARIZES THE WHOLE PARAGRAPH. UNDERLINE THIS SENTENCE (you should underline this sentence on the text on the projector) WITH YOUR BLACK PENCIL. IF WE WERE WRITING A SUMMARY, YOU COULD JUST COPY THIS SENTENCE DOWN INTO YOUR SUMMARY BECAUSE IT TELLS US THE MAIN POINT OF PARAGRAPH 2.

NOW LETS LOOK AT PARAGRAPH NUMBER 3. PARAGRAPH 3 TELLS US THE ARTS AND CRAFTS SKILLS OF THE INCAS. IS THERE ONE SENTENCE THAT SUMMARIZES THIS IDEA. YES, LOOK AT SENTENCE ONE. IT SAYS, THE INCAS WERE SOME OF THE GREATEST CRAFTSPEOPLE OF THEIR TIME. NOTICE HOW THIS ONE SENTENCE SUMMARIZES THE WHOLE PARAGRAPH. UNDERLINE THIS SENTENCE (you should underline this sentence on the text on the projector) WITH YOUR BLACK PENCIL. IF WE WERE WRITING A SUMMARY, YOU COULD JUST COPY THIS SENTENCE DOWN INTO YOUR SUMMARY BECAUSE IT TELLS US THE MAIN POINT OF PARAGRAPH 3.

Put the handout on the projector.

WHEN YOU ARE SUMMARIZING A STORY, YOU SHOULD LOOK FOR THE TOPIC SENTENCE IN EVERY PARAGRAPH AND UNDERLINE IT. THIS SENTENCE SHOULD THEN BE USED IN YOUR SUMMARY. BUT WHAT IF THE AUTHOR DID NOT INCLUDE A TOPIC SENTENCE IN A PARAGRAPH?

Point to Rule 3 and say: RULE 3 SAYS THAT IF THERE IS NO TOPIC SENTENCE, WE SHOULD MAKE UP OUR OWN. LET'S GO BACK TO OUR TEXT AND LOOK AT PARAGRAPH 4.

Remove the handout from the projector and put the clear text on the overhead).

LET'S LOOK AT PARAGRAPH 4. IS THERE A SENTENCE THAT SUMMARIZES THE WHOLE PARAGRAPH. NO, THIS PARAGRAPH DOES NOT HAVE A TOPIC SENTENCE. SO, WE ARE GOING TO HAVE TO MAKE ONE UP. BECAUSE THIS PARAGRAPH IS ABOUT ABOUT THE FIGHTING BETWEEN THE SPANISH AND THE INCAS, A GOOD TOPIC SENTENCE WOULD BE "IT WAS ABOUT 1532 THAT SPANISH EXPORERS FOUND THE WEALTHY EMPIRE OF THE INCAS, AND THE DOWNFALL OF THE INCAN SOCIETY BEGAN BECAUSE OF THE CONFLICT BETWEEN THE INCAS AND THE SPANISH." WHILE I WRITE THIS SENTENCE IN THE MARGIN, YOU SHOULD ALSO WRITE THE SENTENCE ON YOUR TEXT. MAKE SURE YOU WRITE IT IN THE MARGIN BY PARAGRAPH NUMBER 4. IF WE WERE WRITING A

SUMMARY, YOU SHOULD WRITE THIS SENTENCE DOWN IN YOUR SUMMARY BECAUSE IT TELLS THE MAIN POINT OF PARAGRAPH 4.

Once you are finished writing the topic sentence on the overhead, and the students are finished, continue by saying:

NOW, LETS LOOK AT PARAGRAPH NUMBER 5. IS THERE A SENTENCE THAT SUMMARIZES THE WHOLE PARAGRAPH. NO, THIS PARAGRAPH DOES NOT HAVE A TOPIC SENTENCE. SO, WE ARE GOING TO HAVE TO MAKE ONE UP. BECAUSE THIS PARAGRAPH IS WHAT THE SPANISH PEOPLE DID TO THE INCA'S LIVES, A GOOD TOPIC SENTENCE WOULD BE "WHEN THE INCAS WERE CONQUERED BY THE SPANISH, THE INCAN WAY OF LIFE ENDED. WHILE I WRITE THIS SENTENCE IN THE MARGIN, YOU SHOULD ALSO WRITE THE SENTENCE ON YOUR TEXT. MAKE SURE YOU WRITE IT IN THE MARGIN BY PARAGRAPH NUMBER 5. REMEMBER, IF WE WERE WRITING A SUMMARY, YOU WOULD JUST WRITE THIS SENTENCE DOWN IN YOUR SUMMARY BECAUSE IT TELLS THE MAIN POINTS OF PARAGRAPH 5.

REMEMBER THAT FOR EACH PARAGRAPH IN A TEXT, YOU SHOULD LOOK FOR THE TOPIC SENTENCE. IF THERE IS NO TOPIC SENTENCE, YOU SHOULD MAKE ONE UP.

Put the handout on the overhead projector.

NOW, LET'S LOOK BACK AT OUR HANDOUT. THE FOURTH SPECIFIC RULE SAYS TO GET RID OF ALL THE STUFF THAT IS REPEATED.

Remove the handout from the projector and place the text on the overhead.

USING OUR RED PENCILS, LET'S CROSS OUT ALL THE REPEATED STUFF IN PARAGRAPH ONE.

Using your red felt pen, cross out the repeated information.

LOOKING AT PARAGRAPH ONE, IT SAYS THAT THE INCAS LIVED IN AN AREA FROM THE ANDES MOUNTAINS OF PERU ALL THE WAY TO CHILE. SINCE THIS INFORMATION IS STATED IN THE FIRST SENTENCE, IT IS REPEATED IN THE SECOND SENTENCE. LETS USE OUR RED PENCILS AND CROSS OUT THE PART THAT SAYS LIVED IN AN AREA FROM THE ANDES MOUNTAINS OF PERU ALL THE WAY TO CHILE. WE ALREADY KNOW THAT THEY LIVED IN THE WESTERN PART OF SOUTH AMERICA SO THIS INFORMATION IS REPEATED. MAKE SURE YOU ARE MARKING YOUR TEXT JUST LIKE I AM MARKING THIS TEXT ON THE OVERHEAD.

REMEMBER THAT IN EVERY PARAGRAPH IN A STORY, ANY INFORMATION THAT IS REPEATED SHOULD BE CROSSED OUT. THIS CROSSED OUT INFORMATION SHOULD NOT APPEAR IN YOUR SUMMARY.

Put the handout on the projector.

THE LAST SPECIFIC RULE SAYS TO GET RID OF THE UNIMPORTANT STUFF IN EACH PARAGRAPH. ANY SENTENCE OR WORDS THAT DO NOT TELL ABOUT THE MAIN IDEA OF THAT PARAGRAPH ARE UNIMPORTANT AND SHOULD BE CROSSED OUT.

Remove the handout from the projector and put the text on it.

NOW, LETS LOOK AT PARAGRAPH THREE. IT SAYS THAT THE INCAS MADE CLAY POTTERY AND BEAUTIFUL GOLD, SILVER, COPPER, AND BRONZE ORNAMENTS. THEY ALSO MADE HUGE BUILDINGS OUT OF STONE. THE STONE BUILDINGS WERE TIGHTLY FITTED TOGETHER. THOSE LARGE CARVED STONES WERE PULLED BY THOUSANDS OF PEOPLE TO THE BUILDING PLACE. THERE THE HUGE STONE WERE FITTED INTO GREAT BUILDINGS. We ALREADY KNOE THAT THE INCASE WERE SOME OR OUR GREATEST CRAFTSPEOPLE, SO ALL OF THIS INFORMAION IS NOT IMPORTANT. SO USING OUR BLUE PENCILS, LETS CROSS OUT THESE SENTENCES THAT SAY "THE INCAS MADE CLAY POTTERY AND BEAUTIFUL GOLD, SILVER, COPPER, AND BRONZE ORNAMENTS. THEY ALSO MADE HIGE BUILDINGS OUT OF STONE. THE STONE BUILDINGS WERE TIGHTLY FITTED TOGETHER. THOSE LARGE CARVED STONES WERE PULLED BY THOUSANDS OF PEOPLE TO THE BUILDING PLACE. THERE THE HUGE STONES WERE FITTED INTO GREAT BUILDINGS]" (Using your blue felt pen, cross out these sentences on the text on the overhead).

IN EVERY PARAGRAPH IN A STORY, YOU SHOULD CROSS OUT INFORMATION THAT IS UNIMPORTANT. REMEMBER, THIS CROSSED OUT INFORMATION SHOULD NOT BE INCLUDED IN YOUR SUMMARY.

Put the handout on the projector and say:

NOW WE HAVE FINISHED USING ALL OF THE FIVE SPECIFIC RULES FOR WRITING A SUMMARY. ALL OF THE INFORMATION THAT HAS NOT BEEN CROSSED OUT SHOULD BE USED IN OUR SUMMARY. BUT WE MUST MAKE SURE THAT ALL OF THESE FIVE SPECIFIC RULES HAVE BEEN USED. LET'S READ WHAT OUR THIRD GENERAL STEP IS TO HELP US WRITE A GOOD SUMMARY. (Point to the 3rd general step on the handout). IT SAYS THAT WE SHOULD RETHINK. DO ALL OF OUR PARAGRAPHS HAVE

TOPIC SENTENCES? HAVE WE SAID WHAT THE THEME IS? STEP 4 TELLS US TO CHECK AND MAKE SURE WE DID NOT LEAVE IN ANY LISTS AND WE HAVE NOT REPEATED OUTSELVES. OUR LAST-STEP TELLS US TO DOUBLE-CHECK, AND MAKE SURE WE DID NOT SKIP ANYTHING.

REMEMBER, I ONLY SHOWED YOU HOW TO APPLY THE RULES TO A FEW PARAGRAPHS. BUT, YOU SHOULD APPLY EACH OF THE FIVE RULES TO EVERY PARAGRAPH IN A STORY. THEN, USE THE FINAL THREE GENERAL STEPS TO CHECK ON YOURSELF.

NOW THAT I HAVE SHOWED YOU HOW TO USE THE HANDOUT AND APPLY THE RULES, I WANT YOU TO TRY TO FOLLOW THE STEPS YOURSELVES. LOOK AT THE SECOND STORY CALLED THE ICE AGE.

Appendix E

Training: Summarization Script

Guided Practice: Stone Age Today

Note to instructor: You will read aloud all words that are in capital letters. Words in small letters are instructions to yourself. Do not read these outloud.

The handout should be placed on the overhead projector. Begin the guided practice phase by saying:

FIRST, LET'S ALL READ THE TEXT TO OURSELVES. WHILE YOU ARE READING, (Point to the first step and say:) OUR FIRST STEP IS TO MAKE A STATEMENT ABOUT WHAT THIS TEXT IS ABOUT. OUR SECOND STEP TELLS US TO PICK OUT THE IMPORTANT PARTS OF THE TEXT. SAY THEM TO YOURSELVES (Wait about 5 minutes).

NOW, LETS TRY TO USE THE FIVE SPECIFIC SUMMARIZATION RULES. (Point to the first specific rule and say:) OUR FIRST SPECIFIC RULE TELLS US TO CIRCLE ALL THE LISTS AND TO WRITE A ONE- OR TWO-WORD TERM FOR THEM ABOVE THE LIST ITSELF. GO AHEAD. (Wait 3 minutes).

Point to specific rules 2 and 3 and say: OUR SECOND AND THIRD SPECIFIC RULES TELL US TO FIND ANY TOPIC SENTENCES AND TO UNDERLINE THEM. REMEMBER, IF THERE IS NO TOPIC SENTENCE, YOU WILL HAVE TO MAKE ONE UP. REMEMBER TO WRITE THEM IN THE MARGIN. (wait 5 minutes).

Point to specific rules 4 and 5 and say: OUR FOURTH AND FIFTH SPECIFIC RULES TELL US TO GET RID OF REPEATED AND UNIMPORTANT INFORMATION. FIRST, CROSS OUT REPEATED INFORMATION WITH YOUR RED PENCIL. ONCE YOU HAVE FINISHED, CROSS OUT THE UNIMPORTANT INFORMATION WITH YOUR BLUE PENCIL. GO AHEAD. (wait 6 minutes).

NOW THAT YOU HAVE FINISHED, MAKE SURE YOU CHECK YOUR WORK. LOOK AT GENERAL STEPS 3, 4, AND 5. SEE IF YOU SKIPPED ANYTHING? DO ALL OF YOUR PARAGRAPHS HAVE TOPIC SENTENCES? DID YOU LEAVE IN ANY LISTS? (Wait 1 minute)

Remove the handout from the overhead and put the text on the projector. NOW I WILL GIVE YOU THE CORRECT ANSWERS. WATCH AS I MARK THE TEXT ON THE OVERHEAD AND CHECK YOUR MARKS WITH MINE.

All of the answers are marked on the text in the following order:

THIS STORY IS MAINLY ABOUT THE DISCOVERY OF A NEW GROUP OF PEOPLE.

THE IMPORTANT PARTS ARE: (a) DAFAL WAS THE FIRST PERSON TO DISCOVER THE TASADAYS, (B) THE TASADAYS ARE A SMALL TRIBE THAT HAVE NO TOOLS, NO CLOTHES, AND NO WEAPONS, AND (C) THEY COLLECT OR TRAP THEIR FOOD.

IN CIRCLING THE LISTS, YOU SHOULD HAVE CIRCLED THE LIST IN PARAGRAPH 4 THAT SAYS "TADPOLES, FROGS, AND FRESH WATER CRABS." Point to this list on the text on the overhead. Circle the list and say: A GOOD TWO WORD SUMMARY FOR THIS LIST WOULD BE WATER ANIMALS. Write water animals above the list.

IN PARAGRAPH 4, YOU SHOULD HAVE ALSO CIRCLED THE WORDS FRUIT, BERRIES, FLOWERS, and WILD BANANAS. A GOOD TWO-WORD SUMMARY FOR THIS LIST WOULD BE EDIBLE PLANTS. Circle the list and write eatable plants above it.

IN PARAGRAPH 5, YOU SHOULD HAVE CIRCLED THE LIST DEER, WILD PIG, MONKEY, and MOUSE. A GOOD TWO WORD SUMMARY FOR THIS LIST WOULD BE GAME ANIMALS. Circle the list and write game animals above it.

REMEMBER, YOUR ONE and TWO-WORD SUMMARIES MAY BE DIFFERENT FROM MINE, BUT THEY SHOULD SUMMARIZE THE LIST.

NOW, LETS LOOK FOR OUR TOPIC SENTENCES. IN PARAGRAPH 1, THE TOPIC SENTENCE IS THE LAST SENTENCE IN THE PARAGRAPH. YOU SHOULD HAVE UNDERLINED IT. As you underline the sentence, read it: IT SAYS: HE WAS THE FIRST PERSON TO SEE A STONE AGE CAVEMAN ON THE ISLAND OF MINDANAO. THIS SENTENCE SUMMARIZES PARAGRAPH 1.

FOR PARAGRAPH 2, THE TOPIC SENTENCE IS THE FIRST ONE WHICH READS, "SINCE DAFAL'S DISCOVERY IN 1971, WE HAVE LEARNED SOME INTERESTING THINGS ABOUT THESE PEOPLE WHO STILL LIVE IN CAVES. THIS SENTENCE SUMMARIZES PARAGRAPH 2.

FOR PARAGRAPH 3, THERE IS NO TOPIC SENTENCE, SO YOU HAD TO MAKE ONE UP. A GOOD TOPIC SENTENCE COULD BE "THEY LEAD VERY PRIMITIVE LIVES." THIS SENTENCE TELLS THE MAIN POINTS OF PARAGRAPH 3. REMEMBER, YOUR TOPIC SENTENCES MAY BE DIFFERENT FROM MINE, BUT THEY SHOULD

SUMMARIZE THE PARAGRAPH.

FOR PARAGRAPH 4, THERE IS NO TOPIC SENTENCE, SO YOU HAD TO MAKE ONE UP. A GOOD TOPIC SENTENCE COULD BE: "THE TASADAYS HAVE DIFFERENT WAYS OF GETTING THEIR FOOD."

FOR PARAGRAPH 5, THERE IS NO TOPIC SENTENCE, SO YOU HAD TO MAKE ONE UP, A GOOD TOPIC SENTENCE COULD BE, "THE TASADAYS HAVE NO WEAPONS, BUT THEY TRAP THEIR FOOD. THIS SENTENCE SUMMARIZES THE MAIN POINTS IN PARAGRAPH 5.

FOR THE LAST PARAGRAPH, THE TOPIC SENTENCE IS "THE TASADAYS ARE A LOVING PEOPLE." MAKE SURE YOU UNDERLINED THIS SENTENCE AS I UNDERLINE IT ON THE TEXT.

IF YOU WERE WRITING A SUMMARY, YOU WOULD INCLUDE ALL OF THE TOPIC SENTENCES IN YOUR SUMMARY, BECAUSE THEY TELL THE MAIN POINTS OF EACH PARAGRAPH.

IN ORDER TO FOLLOW RULE 4 AND GET RID OF REPEATED INFORMATION, YOU SHOULD HAVE USED YOUR RED PENCIL AND CROSSED OUT THE FOLLOWING:

Every time you read a repeated sentence in the text, use your red felt pen and cross it out on the text on the overhead.

IN PARAGRAPH 1, YOU SHOULD HAVE CROSSED OUT THE WORD "SUDDENLY," AND THE SENTENCES "HAD A DEER MADE A DASH FOR SAFETY" AND "THEY ROSE 200 FEET IN THE AIR." IN PARAGRAPH 2, YOU SHOULD HAVE CROSSED OUT SENTENCE 3: "THERE ARE 10 MEN, 5 WOMEN, AND 9 CHILDREN IN THE TRIBE." THE SECOND SENTENCE TELLS YOU HOW MANY PEOPLE THERE ARE IN THE TRIBE SO THIS SENTENCE IS A REPEAT OF THE SAME INFORMATION AND SHOULD BE CROSSED OUT.

IN PARAGRAPH 3, YOU SHOULD HAVE CROSSED OUT THE SENTENCE WHICH READS "AND THE TADADAYS HAVE NO DISHES OR POTTERY." THIS INFORMATIONIS GIVEN TO YOU IN THE LAST SENTENCE, SO IT IS A REPEAT AND SHOULD NOT BE INCLUDED IN A SUMMAY.

IN PARAGRAPH 4, YOU SHOULD HAVE CROSSED OUT THE FIRST 2 SENTENCES , "WHERE DO THE TADADAYS GET THEIR FOOD? AND WHAT DO THEY EAT?" THIS INFORMATION IS GIVEN IN YOUR TOPIC SENTENCE. SO YOU SHOULD HAVE CROSSED THEM OUT WITH YOUR RED PENCIL.

IN PARAGRAPHS 5 AND 6, NOTHING IS REPEATED, SO YOU SHOULD HAVE NOTHING CROSSED OUT IN RED.

IN ORDER TO FOLLOW RULE 5, YOU SHOULD HAVE CROSSED OUT THE UNIMPORTANT INFORMATION WITH YOUR GREEN PENCIL. FOLLOW ALONG WITH ME AND CHECK YOUR OWN WORK AS I CROSS OUT THE UNIMPORTANT INFORMATION.

As you read the sentences, cross them out with your blue felt pen on the overhead text.

IN PARAGRAPH 1, YOU SHOULD HAVE CROSSED OUT "SOMETHING MOVED ACROSS THE TRAIL. DAFAL STOPPED. HE LISTENED. THE EYES OF THE EXPERIENCED HUNTER MOVED SLOWLY BACK AND FORTH ACROSS THE TRAIL. DAFAL SLOWLY MADE HIS WAY ALONG THE NARROW TRAIL. THE TREES AROUND HIM WERE THE TALLEST HE HAD EVER SEEN. THEN THE BRUSH BESIDE THE TRAIL MOVED." DAFAL STARTED TO REACH FOR HIS PISTOL. BUT THE UNARMED MAN SMILED AND BEGAN TALKING. DAFAL DID NOT UNDERSTAND THE WORDS, BUT HE KNEW THEY WERE FRIENDLY WORDS. DAFAL ALSO KNEW THAT HE HAD MADE A GREAT DISCOVERY." THIS INFORMATION IS NOT IMPORTANT TO THE STORY. IT SHOULD BE CROSSED OUT WITH YOUR BLUE PENCIL.

IN PARAGRAPH 2, YOU SHOULD HAVE NOTHING CROSSED OUT IN BLUE.

IN PARAGRAPH 3, YOU SHOULD HAVE CROSSED OUT SENTENCES 1-4, and 6. THEY READ: "THE TASADAYS HAVE NO TOOLS FOR FARMING. THEY DO NOT RAISE THEIR OWN FOOD. THEY DO NOT HAVE CLOTH. WHAT CLOTHING THEY WEAR IS MADE FROM LEAVES. THEY USE LEAVES AND PIECES OF BAMBOO FOR DISHES AND CONTAINERS." THIS INFORMATION IS NOT IMPORTANT TO THE MAIN POINTS OF THE STORY. THEY ONLY SERVE TO MAKE THE MAIN POINTS CLEAR AND SHOULD NOT BE INCLUDED IN A SUMMARY.

In PARAGRAPH 4, YOU SHOULD HAVE CROSSED OUT " IN THE STREAMS, THEY CATCH TADPOLES, FROGS, AND FRESH WATER CRABS. THESE ARE WRAPPED IN GREEN LEAVES AND PUT NEXT TO HOT COALS TO COOK. FROM THE GROUND, THE TASADAYS DID A ROOT CALLED YAM. AND THEY COLLECT FRUIT, BERRIES, FLOWERS, AND WILD BANANAS." THIS INFORMATION MAKES THE TOPIC SENTENCE CLEARER, BUT SHOULD NOT BE INCLUDED IN A SUMMARY.

IN PARAGRAPH 5, YOU SHOULD HAVE CROSSED OUT "ONCE IN A WHILE THEY GET LUCKY AND FIND AN ANIMAL IN ONE OF THEIR TRAPS. THE TASADAYS ARE FOND OF EATING DEER, WILD PIG, MONKEY, AND MOUSE. IN PARAGRAPH 6, THE SENTENCES "EVERYONE IN THE TRIBE IS A PARENT TO THE CHILDREN. WHEN THERE IS VERY LITTLE FOOD, THE CHILDREN ALWAYS EAT

FIRST. UNLIKE OTHER GROUPS OF PEOPLE IN THE WORDS," SHOULD BE CROSSED OUT. THESE SENTENCES ARE NOT IMPORTANT TO THE STORY OR THE PARAGRAPH.

NOW THAT YOU HAVE APPLIED ALL THE RULES AND STEPS, YOU COULD WRITE A GOOD SUMMARY OF THIS TEXT BY USING THE INFORMATION THAT YOU HAVE NOT CROSSED OUT AND BY INCLUDING THE TOPIC SENTENCES THAT YOU WROTE IN THE MARGINS.

NOW, WE HAVE ONLY ONE THING LEFT TO DO. (pass out the new text). FOR THIS NEW TEXT, I WANT YOU TO WRITE ME AN 80-WORD SUMMARY. WHEN YOU HAVE FINISHED, RAISE YOUR HAND.

important: Do not make any reference to the handout or tell them to follow the rules. However, they may refer to the handout at any time while they are writing the summary. When each student has finished writing his/her summary, collect all of his material (i.e., the 3 texts, his/her summary, and the handout), and give him/her a comprehension test. When he/she finishes the text, put it with his/her other papers and staple all of them together.

you may dismiss the students once the bell rings. Tell them: GOOD BYE, AND HAVE A NICE DAY.

Appendix F

Training: Self-questioning Script

Modeling script for the Inca Passage

Note to instructor: You will read aloud all words that are in capital letters. Words in small letters are instructions to yourself. Do not read these aloud.

Begin the first day of training by saying:

MY NAME IS _____ AND I WAS INVITED BY YOUR TEACHER TO TEACH YOU HOW TO WRITE SUMMARIES. I WILL BE COVERING THE MATERIAL THAT WOULD NORMALLY BE COVERED BY YOUR TEACHER, SO YOU SHOULD TRY TO DO YOUR BEST.

FIRST, I AM GOING TO DEFINE A SUMMARY FOR YOU. A SUMMARY IS A SHORTENED VERSION OF A TEXT. IT SAYS BASICALLY THE SAME THING THAT THE ORIGINAL PASSAGE DOES, BUT IT SAYS IT IN FEWER WORDS. THAT IS WHY IT IS CALLED A SUMMARY. IT IS SHORT.

A SUMMARY CONTAINS THE MAIN POINTS OF THE STORY. A SUMMARY DOES NOT CONTAIN YOUR OPINIONS. YOU MAY THINK THE AUTHOR OF A TEXT IS CRAZY AND THAT THE TEXT IS FULL OF LIES. BUT YOU DON'T SAY SO IN YOUR SUMMARY. A SUMMARY IS ONLY A SHORT VERSION OF THE TEXT, NOTHING MORE.

YOU MAY BE WONDERING WHY WRITING A GOOD SUMMARY IS SO IMPORTANT. BECAUSE A SUMMARY CONTAINS ONLY THE MOST IMPORTANT POINTS OF A STORY, IT HELPS YOU TO UNDERSTAND AND TO REMEMBER WHAT THE STORY IS ABOUT.

THERE ARE CERTAIN THINGS THAT YOU CAN DO TO HELP YOU TO WRITE A GOOD SUMMARY. THESE THINGS ARE LISTED ON THE HANDOUT WHICH I AM PASSING OUT TO YOU. (pass the handout out and two texts to each student and put the clear handout on the overhead projector.)

YOU WILL SEE THAT THIS HANDOUT LISTS 5 STEPS THAT WILL HELP YOU TO UNDERSTAND THE TEXT AND TO WRITE A SUMMARY. PLEASE FOLLOW ALONG ON YOUR HANDOUT AS I READ IT ALOUD.

Read the handout aloud to the students. Make sure you read the headings and make natural pauses after each question.

NOW THAT WE HAVE ALL READ THE FIVE STEPS, I AM GOING TO SHOW YOU HOW TO MAKE UP AND TO USE QUESTIONS IN ORDER TO HELP YOU TO UNDERSTAND THE TEXT AND TO WRITE A GOOD SUMMARY.

Put the clear copy of the text on the overhead projector.

FIRST, LET ALL OF US READ THE TEXT TO OURSELVES. RAISE YOUR HAND WHEN YOU HAVE FINISHED READING THE TEXT.

Wait until all students have finished reading the text. When they have finished, remove the text from the projector and put the clear handout on the overhead projector.

NOW THAT WE HAVE READ THE TEXT, LET'S SEE WHAT THE FIRST STEP IS TO WRITING A GOOD SUMMARY. THE FIRST STEP ON THE HANDOUT TELLS US TO ASK OURSELVES "WHAT AM I STUDYING THIS PASSAGE FOR?" WE ALL KNOW THAT WE ARE STUDYING THIS PASSAGE SO WE CAN WRITE A SUMMARY AND ANSWER SOME QUESTIONS ABOUT THE STORY.

NOW, LET US LOOK AT STEP NUMBER 2. THIS STEP TELLS US TO ASK OURSELVES "WHAT IS THE MAIN IDEA OF THE PARAGRAPH?" AS YOU READ, YOU SHOULD BE LOOKING FOR THE AUTHOR'S MAIN IDEA IN EACH PARAGRAPH. REMEMBER THE THREE RULES FOR FINDING THE MAIN IDEA: (a) THE MAIN IDEA IS THE SENTENCE THAT TELL WHAT THE WHOLE PARAGRAPH IS ABOUT OR THE MAIN IDEA, (b) THE OTHER SENTENCES IN THE PARAGRAPH REFER TO IT, AND (c) THE OTHER SENTENCES IN THE PARAGRAPH ADD DETAILS TO IT. SOME PARAGRAPHS DO NOT HAVE ONE SENTENCE THAT STATES THE MAIN IDEA. WHEN THIS HAPPENS, YOU HAVE TO LOOK FOR THAT PART OF THE PARAGRAPH THAT TELLS THE MAIN POINT. IT MAY BE TWO OR THREE SENTENCES. LET'S READ THE PARAGRAPH MARKED NUMBER 2 ON THE STORY TO OURSELVES.

Put the text on the overhead.

Wait about 2 minutes and state: THE MAIN IDEA OF THIS PARAGRAPH IS THE FIRST SENTENCE WHICH STATES "FARMING IS THE WAY OF LIFE FOR MOST INCA PEOPLE." LETS ALL UNDERLINE THIS SENTENCE. (Underline this sentence on the text on the projector).

THIS SENTENCE STATES THE MAIN POINT OF THE PARAGRAPH. IF YOU LOOK AT THE OTHER SENTENCES IN THE PARAGRAPH, THEY ALL REFER TO THIS STATEMENT. THEY TELL US THE

CROPS THAT THE INCAS GREW AND WHO THE FOOD WAS FOR.

Put the handout on the overhead.

IN ORDER TO MAKE SURE THAT WE HAVE FOUND THE MAIN IDEA OF PARAGRAPH 2, STEP NUMBER 3 TELLS US TO COVER UP THE SENTENCE OR PART OF THE PARAGRAPH THAT STATES THE MAIN IDEA AND TO ASK OURSELVES "DO THE OTHER SENTENCES IN THE PARAGRAPH MAKE SENSE NOW THAT WE HAVE COVERED UP THE MAIN IDEA SENTENCE(S).

Put the text on the overhead.

LETS COVER UP THE MAIN IDEA SENTENCE AND READ THE REST OF THE SENTENCES IN THE PARAGRAPH. (Use a pencil, pen, or other thin object to cover the sentence on the text on the overhead).

THEY STATE: "THE PEOPLE GREW AND STORED POTATOES, CORN, BEANS, AND SQUASH. THOSE CROPS COULD THEN BE USED WHEN FOOD WAS SCARCE. FARMERS ALSO GAVE THEIR FOOD TO THE ARMIES, RULERS, AND RELIGIOUS PEOPLE." DO THESE SENTENCES MAKE SENSE WITHOUT THE MAIN IDEA SENTENCE? WHAT PEOPLE GREW AND STORED POTATOES, CORN, BEANS, AND SQUASH? IF I CAME INTO THE ROOM AND SAID ALL OF THESE SENTENCES, WOULD I MAKE ANY SENSE? NO, I WOULD NOT. SO WE KNOW THAT THE FIRST SENTENCE IS THE MAIN IDEA OF THE STORY.

Put the handout on the overhead.

LOOKING AT STEP 4 ON OUR HANDOUT, IT ASKS US TO THINK OF A QUESTION ABOUT THE MAIN IDEA OF THE PARAGRAPH. REMEMBER, THIS QUESTION SHOULD ASK FOR THE MAIN IDEA OF THE PARAGRAPH. YOU SHOULD WRITE THIS QUESTION USING YOUR OWN WORDS AND NOT REPEATING PHRASES FROM THE TEXT.

Put the text on the overhead.

WE KNOW THAT THE MAIN IDEA OF PARAGRAPH 2 IS "FARMING WAS THE WAY OF LIFE FOR MOST INCA PEOPLE." A GOOD QUESTION COULD BE "HOW DID MOST INCA PEOPLE MAKE A LIVING?" NOTICE HOW THIS QUESTION ASKS FOR THE MAIN IDEA AND I WROTE THE QUESTION IN MY OWN WORDS. LETS WRITE THIS QUESTION IN THE MARGIN, NEXT TO PARAGRAPH #2.

Write the question in the margin on the text, which is on the overhead, next to paragraph #2.

Put the handout on the overhead.

THE LAST STEP TELLS US TO LEARN THE ANSWER TO OUR QUESTION.

Put the text on the overhead.

IN ORDER TO ANSWER OUR QUESTION, WE KNOW THAT FARMING IS THE WAY MOST INCA PEOPLE MADE A LIVING. IF WE WERE WRITING A SUMMARY, YOU WOULD ONLY HAVE TO WRITE THE ANSWER TO YOUR QUESTION IN ONE SENTENCE, JUST LIKE WE DID ABOVE.

NOW LETS USE ALL THE FIVE STEPS ON THE PARAGRAPH MARKED NUMBER 4 ON YOUR TEXT.

Put the handout on the overhead.

THE FIRST STEP ASKS US "WHAT ARE WE STUDYING THIS PASSAGE FOR?" WE KNOW THAT WE ARE STUDYING THIS PASSAGE SO WE CAN WRITE A SUMMARY AND ANSWER SOME QUESTIONS ABOUT THE STORY.

NOW, LET US LOOK AT STEP NUMBER 2. THIS STEP TELLS US TO ASK OURSELVES "WHAT IS THE MAIN IDEA IN THIS PARAGRAPH?" REMEMBER THAT THE MAIN IDEA IS THE MOST GENERAL STATEMENT IN THE PARAGRAPH. MOST OF THE OTHER SENTENCES IN THE PARAGRAPH EITHER REFER TO IT OR ADD DETAILS TO IT. IF NO ONE SENTENCE STATES THE MAIN IDEA, WE SHOULD FIND THAT PART OF THE PARAGRAPH THAT STATES THE IMPORTANT POINT.

Put the text on the projector and remove the handout.

LETS READ PARAGRAPH NUMBER 4 TO OURSELVES.

Wait about 2 minutes and state: PARAGRAPH NUMBER 4 DOES NOT HAVE ONE SENTENCE THAT STATES THE MAIN IDEA, SO WE HAVE TO FIND THAT PART OF THE PARAGRAPH THAT STATES THE IMPORTANT POINT. THE IMPORTANT POINT OF PARAGRAPH NUMBER 4 IS THAT "IT WAS ABOUT 1532 THAT THE SPANISH EXPORERS FOUND THE WEALTHY EMPIRE OF THE INCAS, FIGHTING THEN BEGAN BETWEEN THE SPANISH AND THE INCAS; AND THEY WERE FINALLY CONQUERED BY THE SPANISH IN 1569." LETS ALL UNDERLINE THESE SENTENCES.

Underline these sentences on the text on the projector.

THESE SENTENCES STATE THE MAIN POINT OF PARAGRAPH 4. IF YOU LOOK AT THE OTHER SENTENCES IN THE PARAGRAPH, THEY ALL REFER TO THESE SENTENCES. THESE SENTENCES TELL US

WHO FOUGHT THE INCAS, WHY THEY FOUGHT THE INCAS, AND WHEN.

Put the handout on the overhead.

IN ORDER TO MAKE SURE THAT WE HAVE FOUND THE MAIN IDEA OF PARAGRAPH 4, STEP NUMBER 3 TELLS US TO COVER UP THE SENTENCE OR PART OF THE PARAGRAPH THAT STATES THE MAIN IDEA AND TO ASK OURSELVES "DO THE OTHER SENTENCES IN THE PARAGRAPH MAKE SENSE NOW THAT WE HAVE COVERED UP THE MAIN IDEA SENTENCE?"

Put the text on the overhead.

LETS COVER UP OUR MAIN IDEA SENTENCES, WHICH WE HAVE UNDERLINED, AND READ THE REST OF THE SENTENCES IN THE PARAGRAPH. (Use a pencil, pen, or other thin object to cover up these sentence fragments and cover up the underlined sentences on the text on the overhead.) THEY STATE: "THE INCA SOCIETY CONTINUED TO SPREAD THROUGHOUT THE WESTERN PART OF SOUTH AMERICA FROM 1450 to 1532 A.D. THE SPANISH WANTED THE GOLD AND SILVER RICHES. IT CONTINUED FOR MORE THAT THIRTY YEARS. THE INCAS DID NOT HAVE GUNS, ARMOR, OR HORSES." DO THESE SENTENCES MAKE SENSE WITHOUT THE MAIN IDEA SENTENCES? WHAT CONTINUED FOR MORE THAN 30 YEARS? IF I CAME INTO THE ROOM AND SAID ALL OF THESE SENTENCES, WOULD I MAKE ANY SENSE? NO, I WOULD NOT. SO WE KNOW THAT THESE SENTENCES STATE THE MAIN IDEA OF PARAGRAPH 4.

Put the handout on the overhead.

LOOKING AT STEP NUMBER 4 ON OUR HANDOUT, IT ASKS US TO THINK OF A QUESTION ABOUT THE MAIN IDEA. REMEMBER, THIS QUESTION SHOULD ASK FOR THE MAIN IDEA OF THE PARAGRAPH. YOU SHOULD WRITE THIS QUESTION USING YOUR OWN WORDS AND NOT REPEATING PHRASES FROM THE TEXT.

Put the text on the overhead.

WE KNOW THAT THE MAIN IDEA OF PARAGRAPH 4 is "IT WAS ABOUT 1532 THAT THE SPANISH EXPLORERS FOUND THE WEALTHY EMPIRE OF THE INCAS, FIGHTING BROKE OUT BETWEEN THE SPANISH AND THE INCAS, AND THE INCAS WERE CONQUERED BY THE SPANISH IN 1569. A GOOD QUESTION COULD BE "HOW LONG DID THE WAR BETWEEN THE SPANISH AND THE INCAS LAST AND WHO WON IT. NOTICE HOW THIS QUESTION ASKS FOR THE MAIN IDEA AND I USED MY OWN WORDS. LETS WRITE THIS QUESTION IN THE MARGIN NEXT TO PARAGRAPH 4. (Write this question on the text on the overhead next to paragraph 4).

Put the handout on the overhead.

THE LAST STEP TELLS US TO LEARN THE ANSWER TO OUR QUESTION.

THE ANSWER TO OUR QUESTION IS THAT THE WAR BETWEEN THE SPANISH AND THE INCAS WENT FROM 1532 to 1569, and the SPANISH WON THE WAR. IF WE WERE WRITING A SUMMARY, YOU WOULD ONLY HAVE TO WRITE YOUR ANSWER TO YOUR QUESTION IN A FULL SENTENCE, JUST LIKE I JUST DID. BECAUSE THE QUESTION AND ANSWER STATE THE MAIN IDEA OF PARAGRAPH 4, NO OTHER INFORMATION IS NEEDED IN OUR SUMMARY.

IF WE WERE WRITING A SUMMARY OF THE ENTIRE TEXT, YOU WOULD APPLY THESE FIVE STEPS TO EVERY PARAGRAPH IN THE TEXT. FOR EVERY PARAGRAPH, YOU WOULD FIND AND UNDERLINE THE MAIN IDEA, WRITE A QUESTION WHICH ASKS FOR THE MAIN IDEA, AND YOU WOULD LEARN THE ANSWER TO YOUR QUESTIONS. THEN, FOR EVERY PARAGRAPH IN THE TEXT, YOU WOULD WRITE YOUR ANSWERS TO YOUR QUESTIONS SO THAT THEY MADE ONE OR TWO SENTENCES. THEN YOU WOULD COPY THESE SENTENCES TO WRITE A SUMMARY OF THE TEXT. YOU WOULD SEE THAT EACH QUESTION AND ANSWER FROM EACH PARAGRAPH PROVIDES YOU THE MAIN IDEAS OF THE STORY AND HELPS YOU TO WRITE A GOOD SUMMARY.

NOW THAT I HAVE SHOWED YOU HOW TO USE THE HANDOUT, I WANT YOU TO TRY TO FOLLOW THE STEPS YOURSELVES. HERE IS A NEW TEXT CALLED THE ICE AGE.

Appendix G

Training: Self-questioning Script

Guided Practice: Stone Age Today

Note to instructor: You will read aloud all words that are in capital letters. Words in small letters are instructions to yourself. Do not read these aloud.

The new text should be on the overhead projector. Begin the guided practice phase handing out the text and saying:

FIRST, LET'S ALL READ THE TEXT TO OURSELVES. RAISE YOUR HAND WHEN YOU HAVE FINISHED READING THE TEXT.

When all students have finished reading the text, remove the text from the projector and put the handout on the overhead.

NOW THAT WE HAVE READ THE TEXT, (Point to the first step and say:) OUR FIRST STEP IS TO ASK OURSELVES "WHAT AM I STUDYING THIS PASSAGE FOR?" ANSWER THIS QUESTION TO YOURSELVES (wait 1 minute).

NOW LETS TRY TO USE THE REMAINING FOUR STEPS TO HELP US TO UNDERSTAND THIS TEXT.

Point to the second step and say:

THE SECOND STEP TELLS US TO FIND AND UNDERLINE THE MAIN IDEA IN EACH PARAGRAPH. REMEMBER TO USE THE THREE RULES TO FIND THE MAIN IDEA IN EACH PARAGRAPH. IN ORDER TO CHECK OURSELVES, USE STEP NUMBER 3. (Point to step 3 and say): OUR THIRD STEP TELLS US TO CHECK TO SEE IF WE HAVE FOUND THE CORRECT SENTENCE OR PART OF THE PARAGRAPH THAT TELLS THE MAIN IDEA BY COVERING UP OUR UNDERLINED SENTENCE OR SENTENCES, READING THE REMAINING SENTENCES, AND ASKING OURSELVES "DO THESE SENTENCES MAKE SENSE NOW THAT I HAVE COVERED UP THE MAIN IDEA SENTENCE?" REMEMBER IF THE REMAINING SENTENCES MAKE NO SENSE, YOU HAVE FOUND THE MAIN IDEA.

Point to steps four and five and say: STEPS FOUR AND FIVE TELL US TO MAKE UP A QUESTION ABOUT THE MAIN IDEA IN EACH PARAGRAPH AND TO LEARN THEIR ANSWERS. MAKE SURE YOU WRITE YOUR QUESTION NEXT TO THE PARAGRAPH IT GOES WITH. REMEMBER THAT YOUR QUESTIONS SHOULD ASK FOR THE

MAIN IDEA OF THE PARAGRAPH AND YOU SHOULD USE YOUR OWN WORDS. (wait 19 minutes)

NOW THAT YOU HAVE FINISHED USING THE STEPS TO ALL OF THE PARAGRAPHS IN THE TEXT, I WILL MODEL THE STEPS FOR YOU.

Point to step number one on the handout which should still be on the overhead and say:

FOR STEP 1, YOU ALL KNOW THAT WE ARE STUDYING THIS TEXT SO YOU CAN WRITE A SUMMARY AND ANSWER SOME QUESTIONS ABOUT IT.

FOR THE NEXT FOUR STEPS, I WILL MODEL EACH STEP IN EACH PARAGRAPH.

Put the text on the overhead and remove the handout.

FOR PARAGRAPH 1, THE MAIN IDEA IS THE LAST SENTENCE WHICH READS: HE WAS THE FIRST PERSON TO SEE A STONE AGE CAVEMAN ON THE ISLAND OF MINDANAO. YOU SHOULD HAVE UNDERLINED THIS SENTENCE ON YOUR TEXT. (underline this sentence on the text which is on the overhead). IF YOU COVER UP THIS SENTENCE AND READ THE REST ON THE SENTENCES IN THE PARAGRAPH, THE PARAGRAPH MAKES NO SENSE. THAT IS HOW WE KNOW THAT WE HAVE CHOSEN THE CORRECT SENTENCE WHICH TELLS THE MAIN IDEA OF THE PARAGRAPH. A GOOD QUESTION THAT ASKS ABOUT THE MAIN IDEA WOULD BE "WHAT DID DAFAL SEE?" LETS WRITE THIS QUESTION NEXT TO PARAGRAPH ONE ON OUR TEXT.

Write this sentence on the text next to paragraph one.

A GOOD ANSWER TO THIS QUESTION TELLS US THE MAIN IDEA: DAFAL SAW A STONE AGE CAVEMAN ON THE ISLAND OF MINDANAO. REMEMBER, IF WE WERE WRITING A SUMMARY, WE COULD WRITE THIS ANSWER AND USE IT IN OUR SUMMARY SINCE IT TELLS THE MAIN POINT OF PARAGRAPH 1.

FOR PARAGRAPH 2, THE MAIN IDEA IS STATED IN THE FIRST SENTENCE WHICH READS "SINCE DAFAL'S DISCOVERY IN 1971, WE HAVE LEARNED SOME INTERESTING THINGS WBOUT THESE PEOPLE WHO STILL LIVE IN CAVES]" YOU SHOULD HAVE UNDERLINED THIS SENTENCE ON TOUR TEXT.)underline this sentence on the text which is on the overhead.) IF YOU COVER UP THIS SENTENCE AND READ THE REST OF THE PARAGRAPH, THE PARAGRAPH MAKES NO SENSE. THAT IS HOW WE KNOW THAT WE HAVE THE MAIN IDEA OF THE PARAGRAPH. A GOOD QUESTION WOULD BE: WHAT DID DAFAL DISCOVER ABOUT

THESE PEOPLE? LETS WRITE THIS QUESTION NEXT TO PARAGRAPH TWO ON OUR TEXT.

Write this sentence on the text next to paragraph 2.

A GOOD ANSWER TO THIS QUESTION TO TELL US THE MAIN IDEA OF PARAGRAPH 2 is: HE DISCOVERED PEOPLE THAT LIVE IN CAVES.

FOR PARAGRAPH 3, THERE IS NO ONE SENTENCE THAT TELLS US THE MAIN IDEA, SO WE HAVE TO UNDERLINE THAT PART OF THE PARAGRAPH THAT TELLS US THE IMPORTANT POINTS. THE IMPORTANT POINTS IN PARAGRAPH 3 ARE: THE TASADAYS HAVE NO TOOLS FOR FARMING. THEY DO NOT HAVE CLOTH. AND THEY HAVE NO DISHES OR POTTERY. YOU SHOULD HAVE UNDERLINED THESE WORDS ON YOUR TEXT. (Underline these words on the text which is on the overhead). IF YOU COVER UP THESE WORDS AND READ THE REST OF THE SENTENCES IN THE PARAGRAPH, THE PARAGRAPH MAKES NO SENSE, SO WE KNOW WE HAVE FOUND THE MAIN IDEA OF PARAGRAPH 3. A GOOD QUESTION TO ASK FOR THE MAIN IDEA WOULD BE: WHAT DID THE TASADAYS DO WITHOUT? LETS WRITE THIS QUESTION NEXT TO PARAGRAPH 3 ON OUR TEXT.

Write this sentence on the next next to paragraph 3.

A GOOD ANSWER TO THIS QUESTION IS: THE TASADAYS HAD NO FARM TOOLS, NO CLOTHES, AND NO DISHES.

FOR PARAGRAPH 4, THERE IS NO ONE SENTENCE WHICH TELLS US THE MAIN IDEA. SO WE HAVE TO UNDERLINE THAT PART OF THE PARGRAPH WHICH TELLS US THE IMPORTANT POINTS. THE IMPORTANT POINTS ARE: TASADAYS SPEND A FEW HOURS EACH DAY COLLECTING FOOD. IN THE STREAMS, FROM THE GROUND, AND THEY COLLECT FRUIT. YOU SHOULD HAVE UNDERLINED THESE WORDS ON YOUR TEXT. (underline these words on the overhead.) IF YOU COVER UP THESE WORDS AND READ THE REST OF THE PARAGRAPH, THE PARAGRAPH MAKES NO SENSE. A GOOD QUESTION TO TELL AND ASK ABOUT THE MAIN POINTS WOULD BE "HOW DO THE TASADAYS GET THEIR FOOD?" LETS WRITE THIS QUESTION NEXT TO PARAGRAPH 4 ON OUR TEXT.

Write this sentence on the text next to paragraph 4.

A GOOD ANSWER TO THIS QUESTION IS: THE TASADAYS COLLECT FOOD IN THE STREAMS, IN THE GROUND, AND OFF OF TREES.

FOR PARAGRAPH 5, THERE IS NO ONE SENTENCE WHICH TELLS US THE MAIN IDEA. SO WE HAVE TO UNDERLINE THAT PART OF THE PARAGRAPH THAT TELLS US THE MAIN POINTS. THE IMPORTANT

POINTS IN PARAGRAPH 5 ARE: "THE TASADAYS HAVE NO WEAPONS. THEY TRAP BUT DO NOT HUNT." YOU SHOULD HAVE UNDERLINED THESE SENTENCES ON YOUR TEXT. (underline these sentnces on the text which is on the overhead.) IF YOU COVER UP THESE SENTENCES AND READ THE TEST OF THE PARAGRAPH, THE PARAGRAPH MAKES NO SENSE. THIS IS HOW WE KNOW THAT WE HAVE FOUND THE MAIN IDEA FOR PARAGRAPH 5. A GOOD QUESTION WOULD BE: HOW DID THE TASADAYS GET MEAT TO EAT? LETS WRITE THIS QUESTION NEXT TO PARAGRAPH 5 ON OUR TEXT.

Write this question on the text next to paragraph 5.

A GOOD ANSWER TO THIS QUESTION WOULD BE: BECAUSE THE TASADAYS HAVE NO WEAPONS, THEY MUST TRAP THEIR FOOD.

FOR THE LAST PARAGRAPH, THE MAIN IDEA IS THE FIRST SENTENCE WHICH READS: THE TASADAYS ARE A LOVING PEOPLE. YOU SHOULD HAVE UNDERLINED THIS SENTENCE ON YOUR TEXT. (underline this sentence on the text on the overhead). IF YOU COVER UP THIS SENTENCE AND READ THE REST OF THE SENTENCES IN PARAGRAPH 6, THE PARAGRAPH MAKES NO SENSE. THAT IS HOW WE KNOW WE HAVE CHOSEN THE CORRECT SENTENCE WHICH TELLS THE MAIN IDEA OF PARAGRAPH 6. A GOOD QUESTION TO ASK FOR THE MAIN IDEA WOULD BE: HOW DO THE TASADAYS TREAT EACH OTHER? LETS WRITE THIS QUESTION NEXT TO PARAGRAPH 6 ON OUR TEXT.

Write this question on the text next to paragraph 6.

A GOOD ANSWER TO THIS QUESTION WOULD BE: THE TASADAYS ARE NICE AND FRIENDLY TO EACH OTHER. REMEMBER, IF WE WERE WRITING A SUMMARY, WE COULD COPY THIS SENTENCE AND USE IT IN OUR SUMMARY SINCE IT TELLS US THE MAIN IDEA OF PARAGRAPH 6.

NOW THAT WE HAVE APPLIED ALL OF THE STEPS TO EVERY PARAGRAPH IN THE TEXT, WE COULD WRITE A GOOD SUMMARY BY WRITING THE ANSWERS TO OUR QUESTIONS FROM EACH PARAGRAPH. WE WOULD HAVE OUR SUMMARY, BECAUSE EACH ANSWER ADDS NEW INFORMATION AND TELLS US THE MAIN IDEAS OF EACH PARAGRAPH IN THE TEXT.

NOW WE HAVE ONLY ONE THING LEFT TO DO. (pass out the new text). FOR THIS NEW TEXT, I WANT YOU TO READ IT AND THEN WRITE ME ABOUT AN 80-WORD SUMMARY. WHEN YOU HAVE FINISHED, RAISE YOUR HAND AND I WILL COLLECT YOUR THREE STORIES AND YOUR SUMMARY. I WILL THEN GIVE YOU A COMPREHENSION TEST ON THIS NEW PASSAGE.

important: Do not make any reference to the handout or tell them to follow the rules. However, they may refer to the handout at any time while they are writing the summary. When each student has finished writing his/her summary, collect all of his/her material (i.e., the 3 texts, his/her summary, and the handout) and give him/her a comprehension test. When he/she finishes the test, put it with his/her other papers and staple them all together.

You may dismiss the students once the bell rings. Tell them: GOODBYE, HAVE A NICE DAY!

VITA

Erin Cuccia is originally from New Orleans where she attended Mt. Carmel Academy. She received a Bachelor of Arts Degree from Louisiana State University in Baton Rouge in August, 1981. In 1983, she received her M.A. degree in developmental psychology from L.S.U. in Baton Rouge.

Her educational experiences include working as a graduate assistant at L.S.U. and teaching preschool. Presently, she is employed as a school psychologist at Pupil Appraisal in East Baton Rouge Parish.

She is an associate member of the American Psychological Association, and a member of the Southeastern Psychological Association and the Louisiana School Psychological Association.

EXAMINATION AND THESIS REPORT

Candidate: Erin Cuccia

Major Field: Psychology

Title of Thesis: Cognitive Strategy Training Effects On Reading Comprehension In Learning Disabled Readers

Approved:

Ray R. Buss
Major Professor and Chairman

Dean of the Graduate School

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Date of Examination:

May 1, 1987